THE BRICKBUILDER

VOLUME XVIII NOVEMBER 1909 NUMBER 11

PUBLISHED MONTHLY BY ROGERS & MANSON

85 Water Street - - - Boston, Massachusetts

Entered at the Boston, Mass., Post Office as Second-Class Mail Matter, March 12, 1892.

Subscription price, mailed flat to subscribers in the United States, Insular Possessions and Cuba . . . . . $5.00 per year
Single numbers . . . . . 50 cents
Subscription price, mailed flat to subscribers in Canada . . . . . $5.50 per year
To Foreign Countries in the Postal Union . . . . . $6.00 per year

SUBSCRIPTIONS PAYABLE IN ADVANCE

For sale by all news dealers in the United States and Canada. Trade supplied by the American News Company and its branches.

ADVERTISING

Advertisers are classified and arranged in the following order:

Advertisements will be printed on cover pages only.

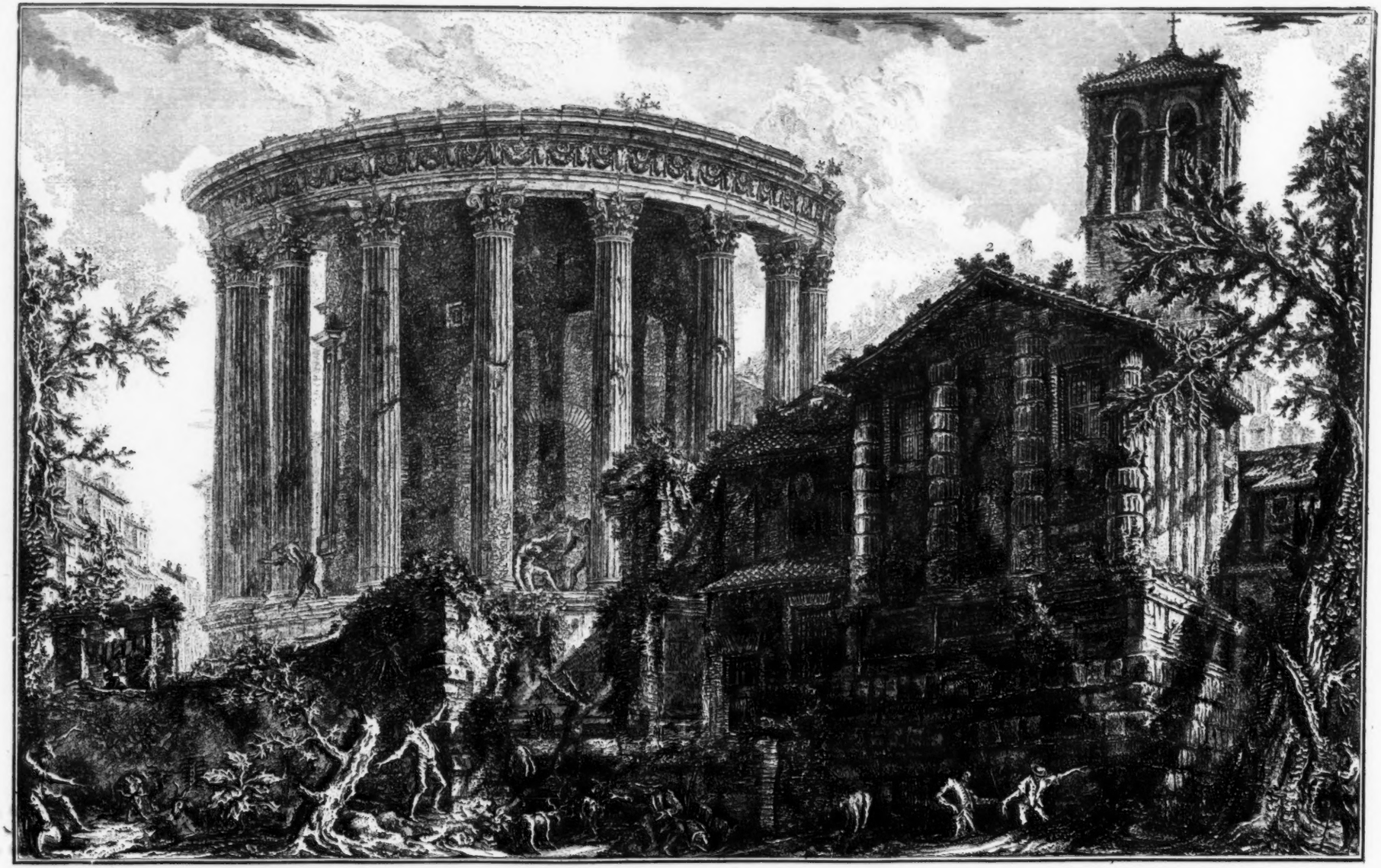
CONTENTS

PLATE ILLUSTRATIONS

FROM WORK BY

COOLIDGE & CARLSON; CRAM, GOODHUE & FERGUSON; MARSH & PETER; NEWMAN & HARRIS; DWIGHT H. PERKINS; CHARLES F. SCHWEINFURTH; WHEELWRIGHT & HAVEN.

LETTERPRESS



THE TEMPLE OF VESTA AND THE TEMPLE OF THE TIBURTINE SIBYL, AT TIVOLI, NEAR ROME.

GIOVANNI BATTISTA PIRANESI, DEL.

The small round temple of Vesta stands on the edge of the ravine, through which dash the waters of the Anio, forming the falls at Tivoli. It is seven yards in diameter and was surrounded by an open corridor of eighteen Corinthian columns (18 feet in height), of which ten remain. The temple dates from the time of Augustus, the best period of Roman art. Close by, shown on the right of Piranesi's engraving, is the temple of the Tiburtine Sibyl. It was long dedicated to St. George and used as a church, its Ionic columns being built into the walls. In 1885 some of the later supplementary buildings were removed and the church restored to its ancient form.

THE BRICKBVILDER

VOL. 18 NO. 11 DEVOTED·TO·THE·INTERESTS·OF·ARCHITECTVRE·IN MATERIALS·OF·CLAY· NOVEMBER 1909

Two New Schoolhouses, Boston.

THE object of this article is to describe the most recent methods of the Boston Schoolhouse Commission, particularly as shown in the two new elementary schools—the Nathan Hale, a primary school, and the Bishop Cheverus, a grammar school. The problem of comfortably and properly housing, in the midst of the confusion and congestion of a large city, an army of one hundred thousand school children, is an elaborate one, but it may be conveniently classified for discussion under the following heads:

1. To accommodate the standard class of forty-four pupils, in a room as compact and economical as is consistent with the comfort and health of the inmates.

2. To give the pupils clean wholesome air, unvarying in temperature, and, if possible, in humidity.

3. To provide the rooms in which they work with abundant daylight, so directed as to favor to the utmost the eyes of the pupils.

4. To provide further a similar artificial illumination for night work.

5. To introduce into each room a certain amount of sunshine, as this has been proven essential to the best health and happiness of the children.

6. To furnish each pupil with a desk and chair especially adapted to the individual physique.

7. To encourage under proper conditions the spirit of play, indoors and out, by playgrounds and play rooms.

8. To provide clean and abundant toilets, wash rooms, and coat rooms.

9. To provide a nurse's room for the better care of children who are ill, or uncleanly in their habits.

10. To equip the building with every device needed to accomplish an easy and prompt administration of the school; including clock, bell, and telephone systems, fire exits, offices, and storerooms.

11. To provide an assembly hall for general exercises.

12. To give the children a building which will offer every reasonable discouragement to dirt and dampness; which will be cheerful, not easily marred or injured, safe from fire, and beautiful enough to lead the pupils' taste rather upward than downward; and to do all this with that rigid economy of the public funds which the citizens have a right to demand of their servants, the commissioners.

Let us examine in some detail the above summary of requirements for the two schools under discussion.

1. The size of the standard class room, seating forty-four pupils (formerly fifty-six) has been reduced from 24 feet by 30 feet by 13 feet (in height) for primary, and 26 feet by 32 feet by 13 feet for grammar, to 23 feet by 29 feet by 12 feet for all elementary grades. This reduction in the class room unit results in more material and labor per cubic foot, inasmuch as the walls, floor, and ceiling, which contain the labor and materials, decrease directly as the dimensions of the room, while the cube decreases as the square of the dimensions. This would indicate a higher cost per cubic foot, other conditions being the same. It is, therefore, surprising and gratifying to note that both of the two new schools, built under the above conditions, the Nathan Hale, a small building of twelve rooms, and the Bishop Cheverus, of sixteen rooms, cost but eighteen cents per cubic foot, an unprecedentedly low figure. The Nathan Hale cost $67,320, with a cube of 362,000, and the Bishop Cheverus $102,937, with a cube of 540,000. The cost per pupil in the Bishop Cheverus, $160.84, is far below the average, $197.13, while that in the Nathan Hale, $140.26, is the lowest but one on record, where the average (lower elementary) is $162.83.

2. The problem of heating and ventilation has become a more and more complex one. The department has recently adopted the more economical policy of doing its own engineering work, instead of employing for this work outside domestic engineers. There has been a systematic effort to get rid of the galvanized iron ducts by using concrete trenches under the basement floor both for fresh and tempered air, and building the vertical ducts of brick, pointed on the inside, or keystone blocks made smooth on one side. This reduces the cost by a considerable amount, and simplifies the construction, making less demand for repairs and renewals. Brick flues have been used for both the new schools. Both are also equipped with the gravity system of indirect heat, low pressure, gravity return, with supplementary coils at the bases of the vertical ducts. Motor driven fans are added for the cooking and manual training rooms in the Bishop Cheverus. The above system has been adopted generally as the most satisfactory for the smaller schools. The temperature of the air entering the class rooms is controlled by hand-mixing dampers, operated by the teachers. Each occupant of the room is provided with 30 cubic feet of air a minute, the amount required by the state law.

Experiments are being carried on to discover a practical method of maintaining a constant degree of humidity in the air. No system yet devised has given results sufficiently good to warrant the expenditure necessary to install it.

NATHAN HALE SCHOOL, BOSTON.
Parker, Thomas & Rice, Architects.

3. The windows are placed on the long side for left hand lighting. The Board continues in its policy of making the area of glass, measured inside the sash, not less than twenty per cent of the floor area, or 135 square feet for a room 23 feet deep. If the outside light is obstructed by neighboring buildings this allowance should be increased. The window head is always built square, and kept close to the ceiling, as the top light is the most efficient. The decrease in the height of window, owing to the one foot drop in the ceiling, is offset by the decrease in floor area, so that the proportion of window to wall is but little changed.

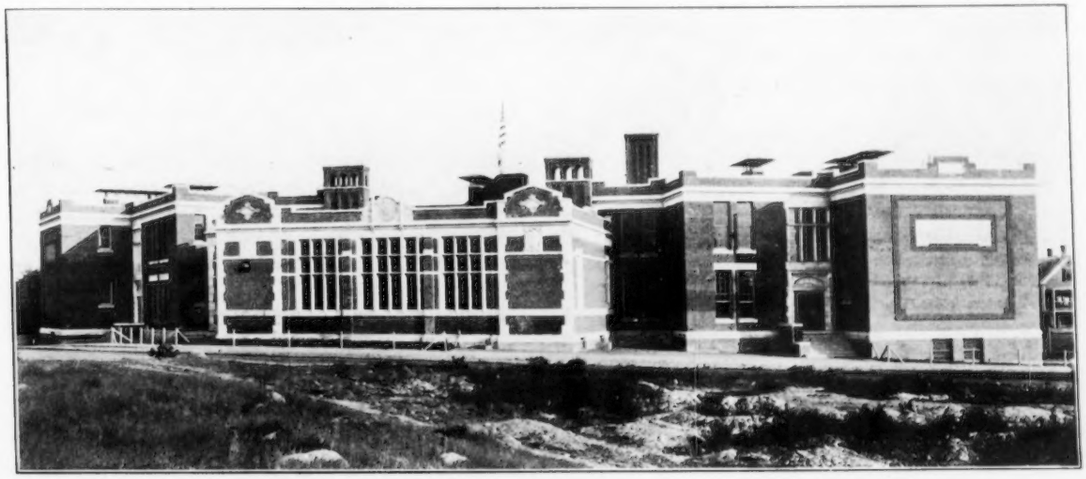
BASEMENT PLAN. FIRST FLOOR PLAN.

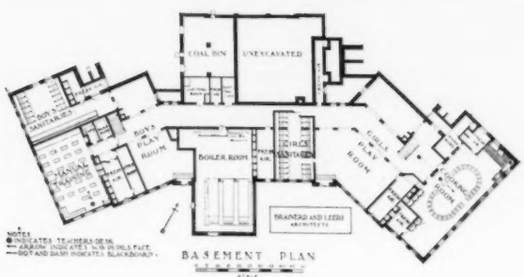
NATHAN HALE SCHOOL.

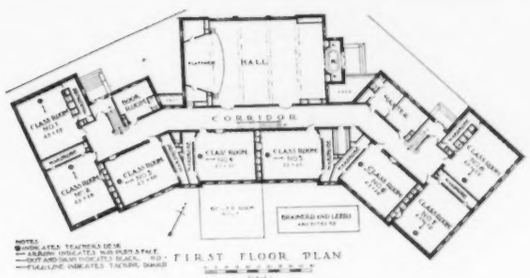
4. The rapidly growing need for night schools requires a complete equipment for artificial light in the class rooms. The number of outlets in each room has been reduced from nine to six in the Bishop Cheverus, and five, in the Nathan Hale. The fixture is a simple chain or stem pendant, with a 60 watt Tungsten or 100 watt G. E. M. lamp, and an acid etched holophane shade. The system is therefore one of direct light, replacing the former more elaborate fixtures designed for a combination of transmitted and reflected light, and affording a twenty or twenty-five per cent gain in the efficiency per watt to offset the reduction in the number of outlets. The change from reflected and transmitted to direct light has been the outcome of experiments which appear to demonstrate that direct light from above and slightly to the left of the pupil (accomplished by placing the lights forward and off center of the room toward the window wall), has two advantages over the former system. It utilizes a larger per cent of the light; and it affords some shadow, and in such a direction as distinctly to aid the unconscious sense of location of the pupil. It appears also to be a more cheerful light, and it is only for special cases, where drafting rooms require the most careful adjustment, that the Board now uses indirect light.

5. The selection of the lot and the planning of the

building are influenced as much by the requirement of sunshine in every class room as by any other consideration. It means lining up the class rooms on the east, south, and west exposures, and running the corridor along the northern outside wall. To accomplish this the Nathan Hale school is designed with an L plan and the Bishop Cheverus with an open U. Such a requirement makes a compact and symmetrical plan impossible. Nevertheless, the case of the Nathan Hale school is of marked interest. The site is on a hill, and has a commanding ledge of Roxbury pudding-stone on the southern portion. The first floor is practically at the grade of the







BISHOP CHEVERUS SCHOOL, BOSTON.
Brainerd & Leeds, Architects.

top of the ledge, with the entrance and playground on the inside of the L at the lower grade. This plan has worked out satisfactorily, and, notwithstanding the blasting necessary, the figures show the building to be an especially economical one.

6. To favor every weakness of physique, and make the pupil as comfortable as is possible, every chair-back is adjustable, as well as every desk. The patterns of casting used for these fixtures have been reduced to great simplicity and durability, but the benefit of the adjustable furniture will always depend largely upon the faithfulness with which it is used.

7. On the sunny side of the building are the play courts, paved with brick, planted with trees, where possible, and often affording the only suitable playing space in the neighborhood. The Board endeavors to obtain a lot which will contain about 35 square feet of vacant ground per pupil, the greater part of which is used for these playgrounds. The school basement contains two large play rooms, one for boys, one for girls. These are finished with granolithic floor, painted brick walls, and whitened ceiling, and are practically proof against injury.

8. The toilet accommodation has been cut from three closets per class room, two for girls, and one for boys, to 2.25, 1.5 for girls, .75 for boys, and from 36 inches of urinal to 33. The play rooms are equipped with slate sinks as formerly.

The fixtures consist in the wash-down closet with large local vent, and sealed and connection between earthenware and iron; and the slate range-urinal, flushed with water from a perforated pipe. In the Nathan Hale school the closets are flushed periodically by an automatic arrangement.

The wash sinks are placed in the play rooms, and additional sinks for drinking are provided in the corridors on all floors.

The wardrobes open off the class rooms, and are built with granolithic floors and base, painted burlap wainscot, and special heat and ventilation. The principle in the arrangement of the wardrobes has remained the same for several years.

9. The nurse's room is a recent and important factor in the school régime. It is designed along the lines of a modern hospital room, terrazzo floor, tiled wainscot, special device for shampooing and bath, if required, toilet, medical cabinet, gas stove, etc.

10. The administration has always been highly efficient. Every room is provided with a secondary clock, run from a master clock in the principal's office. In the primary schools, push buttons control the signal bells; in the higher schools they are operated automatically by master clocks, according to a prearranged program. There is a single center telephone system connecting all the rooms with the master's or his assistant's office.

11. The assembly hall has furnished almost the only opportunity for the display of any design. In the Bishop Cheverus school it is made the feature of the building, yet without extravagance. The floor is linoleum, and very quiet. The walls for 10 or 12 feet are painted burlap, capped with a small wood cornice, with tinted plaster above, and a heavily beamed plaster ceiling. The proscenium arch is modeled in plaster and is rich without being costly. The principal beauty of the room lies in the windows, which are leaded glass in stone mullions. Each window bears a group of stained glass shields, all together making a complete series of the coats-of-arms of the several states of the Union. The hall is on the ground floor, with independent exit directly to the street. Although this is highly desirable, it has been found possible only in this school and the Thomas Gardner. The hall is equipped for stereopticon work, and for the use of the reflectoscope. Common settees are being used for seating.

12. Throughout the design of the buildings the most careful consideration is given the use of materials and forms, in order to avoid dirt. The result has been the elimination of elaborate moldings in wood or plaster finish, and the universal adoption of the hospital base in its various forms, wood for wood floors, terrazzo for terrazzo floors, and cement for linoleum and granolithic floors. The Bishop Cheverus school has a cement "baseboard" as well as curved angle, in connection with granolithic floors.

To protect the building from dust the windows are all fitted with a metal weatherstrip. The cost of repairs is reduced to a minimum by constructing the sash of small panes and protecting the windows on the playgrounds with wire grilles. The wood finish is left natural, except for treatment with raw linseed-oil, rubbed in. This does not completely fill the pores and leaves a surface easily soiled, and apt to catch dust. It would seem that some better surface must soon be discovered.

The class room walls have painted burlap dadoes (with tinted plaster above) and can easily be washed. In the Bishop Cheverus school the same material is placed on the corridor walls, with good effect. The Nathan Hale corridors are common brick, painted a glaring white, and though irreproachably clean, present to the eye a rather barren and uninviting aspect. Salt-glazed brick gave promise of fulfilling the requirements but was found not to be economical. Here there has been an obvious difficulty in reconciling the practical to the esthetic; a process which can well be postponed until most of the vital practical questions have been settled one way or the other.

To safeguard the children against fire the most careful planning has been followed out. All doors from the building open out. Wardrobe doors are double swung. The children's entrances are always to the basement and are independent of but convenient to the staircases up. The main entrance or entrances are free of the staircases. The staircase leads to the basement, making basement entrances as well as the others available. The buildings are entirely fireproof, and the clearest approach to the stairs is considered the best. The use of metal doors for class rooms is being considered. This would make these rooms safe even if the corridors were filled with smoke. The heating plant is always isolated in the basement. In the Bishop Cheverus school it is in a low wing by itself.

A considerable saving has been made by building the roof frame of wood instead of steel or concrete. The roof is considered as practically isolated from the rest of the building, and as a recent decision of the Law Department has made this interpretation of the Building Law possible, the Board has been glad to adopt the above mentioned policy of economy.

The esthetic side of the school buildings, as already

hinted, must await the crystallization of practical forms. A general style of Tudor design in brick and stone seems to be the predominant school exterior, and many beautiful compositions have resulted. In spite of the almost complete absence of stone trimmings from the Nathan Hale school, in spite of the rigid simplicity throughout, the design is distinctly excellent. The charm of the Bishop Cheverus assembly hall has already been touched upon.

In summing up, it is plainly visible that steady progress is being made towards providing ideal accommodation for the city's school children, progress not only on the scientific and engineering side, but even in the direction of more beautiful structures.

Three New Schoolhouses, Chicago.

DWIGHT H. PERKINS, ARCHITECT.

BERNHARD MOOS SCHOOL. In planning the Bernhard Moos School ample provision was made for playgrounds. The building was located so that two large recreation spaces were arranged in front, upon which the older students are privileged, while two more were fitted up in the rear for the smaller pupils. Adjoining the playgrounds in the rear of the school will be a number of carefully planned vegetable gardens. Encircling the ensemble will be rows of shrubbery and trees which will in time furnish protection as well as shade.

The exterior of the building is treated with a dark brown vitrified brick, which has a dull glaze, and trimmed with a terra cotta that matches the color of the brick. The planning has been carefully studied so as to meet future contingencies. The central portion of the present building contains an assembly hall, a gymnasium, heating apparatus, and toilets which will provide for future increase of class rooms,—twenty-six additional rooms being contemplated.

There are three stories and a basement, the floors of which are connected by iron stairs with asphalt treads. The stairs are wide and furnish excellent avenues for escape in case of fire, especially when the pupils are drilled to make a hasty and orderly exit. In addition to the stairways, at the opposite ends of the building, there is a flight leading from the ground level to the main floor of the assembly hall, which is located in the center of the schoolhouse. The second floor contains nine class rooms having maple floors, burlap wainscoting, and slate blackboards. The gallery of the assembly hall opens into the main corridor of this floor. The same number of class rooms similarly furnished are found on the third floor, while the remaining space is given up to a gymnasium, which is located over the assembly hall.

The interior finish is somewhat similar to the rest of the recently built Chicago schoolhouses, having all the corridor floors of asphalt. The entire basement, with the exception of the manual training and domestic science departments, is furnished with a concrete flooring.

The cubical contents of the building are 1,291,022 cubic feet, while the entire cost amounts to $205,000, making 15.87 cents per cubic foot.

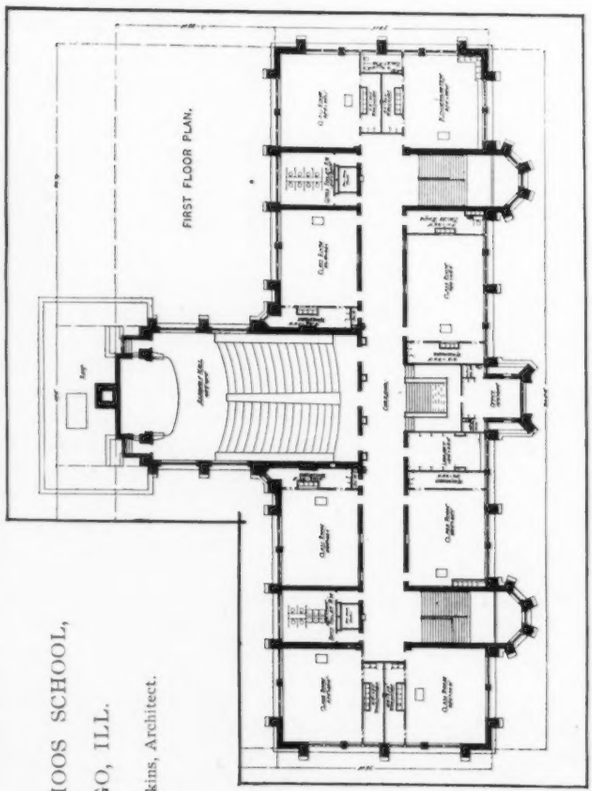
ALBERT G. LANE TECHNICAL HIGH SCHOOL. This is one of the largest and best equipped technical institutions in the world. The exterior has been designed with two ideas in view, simplicity in character and a provision for the maximum amount of light. The exterior is a frank expression of the interior, which has been planned to facilitate the work necessary in accommodating eighteen hundred pupils. Plenty of playground surrounds the building, which affords a suitable setting for the mass of purplish brown brick that is tied together with harmonious trimmings of stone.

The division of instruction consists of four periods, three of which are in the daytime and one in the evening. From the plans we can see how the space has been allotted so as to have the various trades arranged by themselves and still closely allied to each other. In this way little time is lost by the scholars and such economy is necessary where so many pupils are accommodated in such a short part of each day.

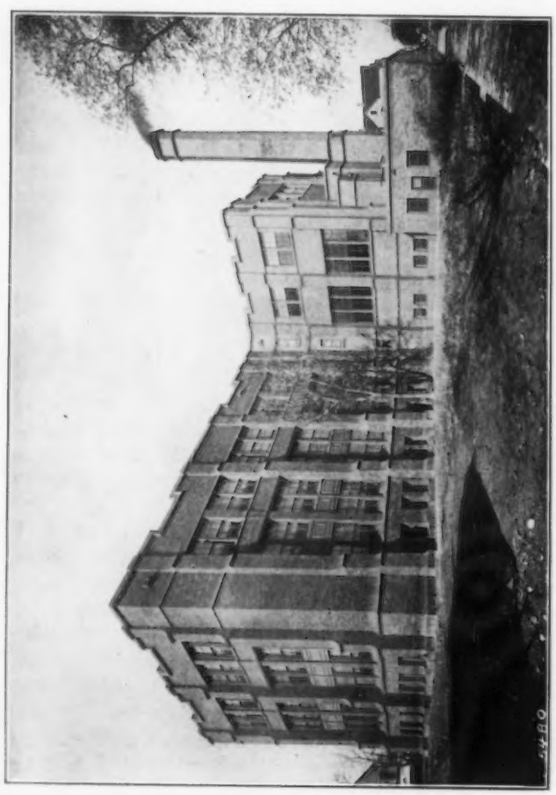
The ground floor contains locker rooms, machine shop, woodworking, foundry, forge, pattern, wood-turning, and electric construction shops with lecture and testing rooms; also the power plant, generator, boiler and coal rooms. The shops contain four hundred benches, the laboratories are equipped with two hundred and twenty tables, while the drawing and drafting rooms have three hundred tables. The shops have a working capacity of four hundred pupils during one period, and a working unit of twenty-four, which is one half the unit of the other departments. Provision has been made for sufficient light and ventilation, as each shop has a skylight in addition to the side windows. The fresh air is distributed throughout the laboratories and shops by means of forced ventilation, which supplies also the class rooms and other parts of the building.

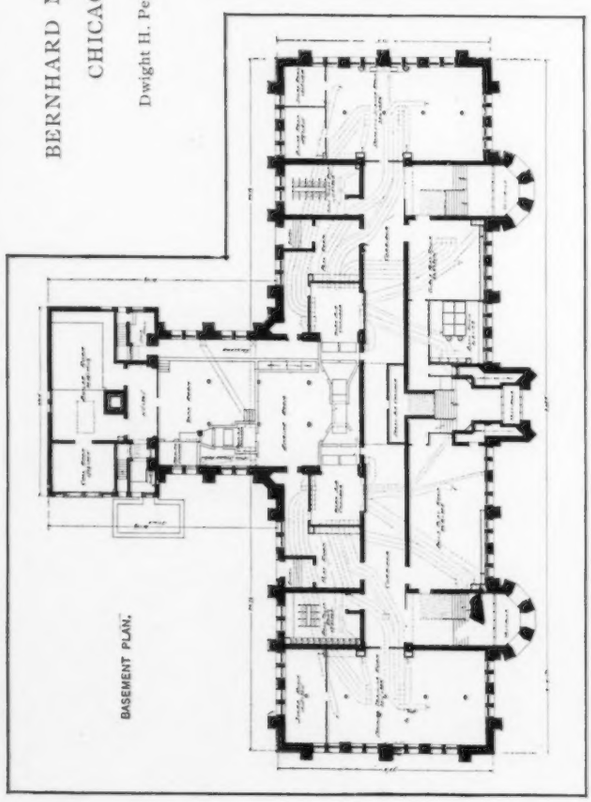
On the first floor are the principal's main and private offices, a museum, botanical and physiographical laboratories, a commercial department, and thirteen class rooms. Here also is the study room assembly hall. This hall has a seating capacity of nine hundred, accommodating five hundred on the main floor, while the remaining four hundred are in the balcony on the second floor. The seats on the first floor are constructed to serve as desks during the day sessions, and when lectures are to be held they can be easily lowered out of the way and replaced by extra portable chairs.

The second floor shows chemical laboratories, dark rooms, balance rooms, private laboratories, and lecture rooms. The lecture rooms are supplied with opaque shades at the windows, which permit of darkening for the use of the stereopticon. There are also on this floor drawing departments which comprise mechanical draftsmanship, architecture, and free-hand, all of which have easy access to the printing rooms located on the roof. Besides the six class rooms there is a library which contains over five thousand volumes. The corridor on this floor



BERNHARD MOOS SCHOOL,
CHICAGO, ILL.
Dwight H. Perkins, Architect.

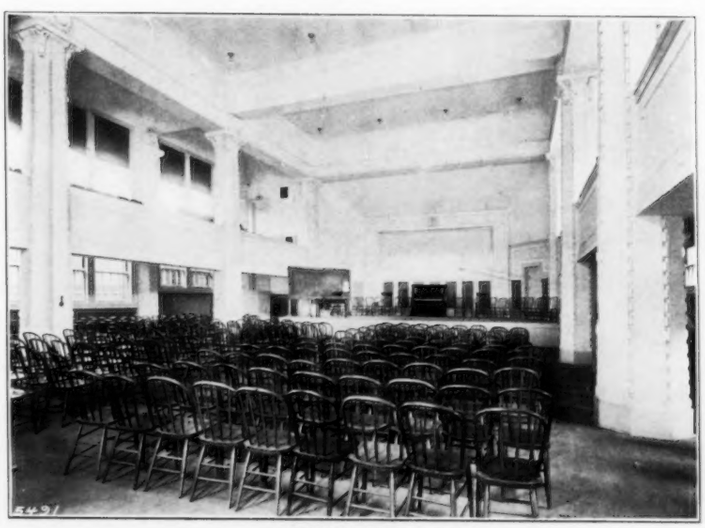




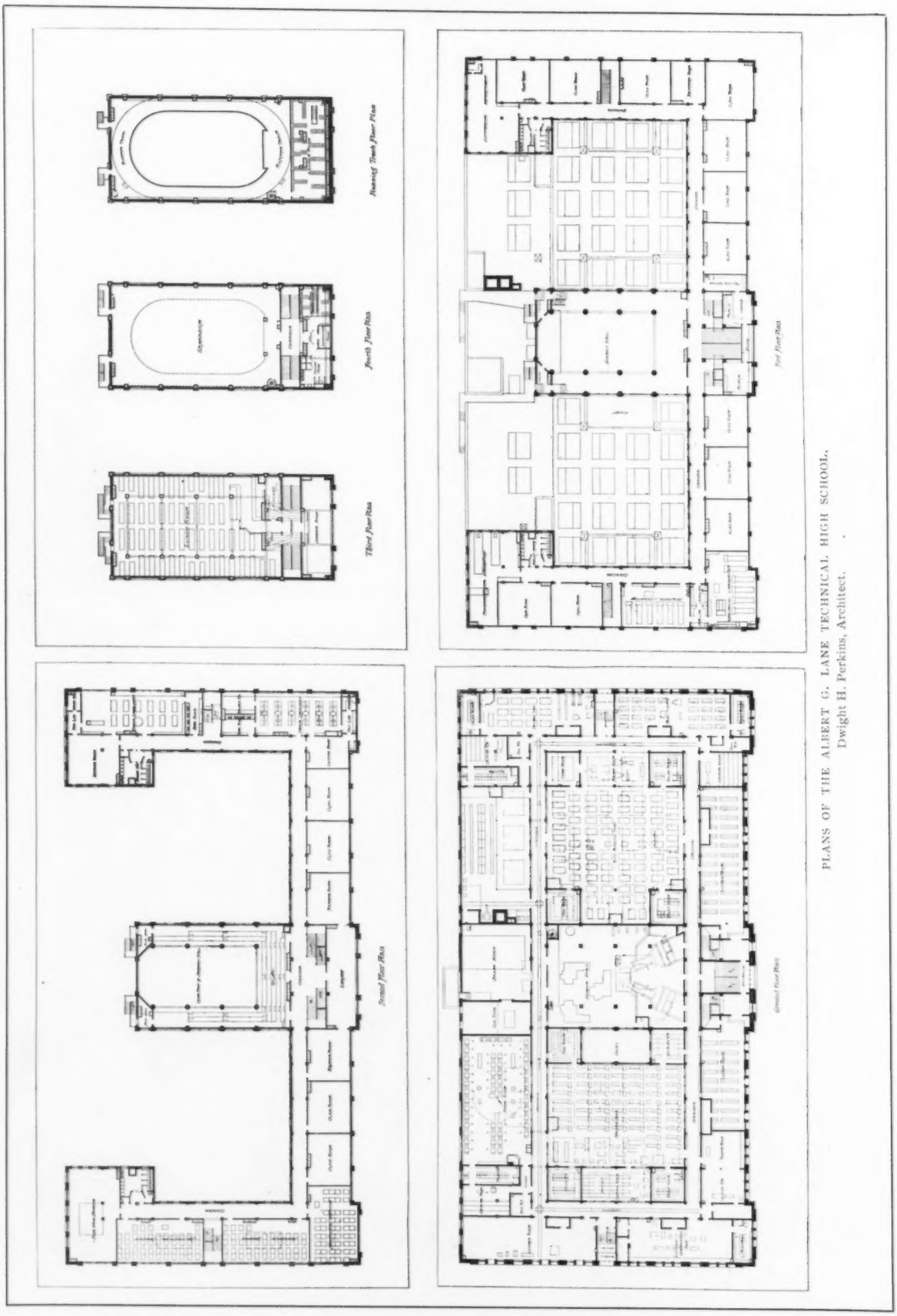
ALBERT G. LANE

TECHNICAL HIGH SCHOOL.

Dwight H. Perkins, Architect.



ASSEMBLY HALL.



PLANS OF THE ALBERT G. LANE TECHNICAL HIGH SCHOOL.
Dwight H. Perkins, Architect.

takes care of the people from the balcony of the large assembly hall, thus alleviating the congestion that usually arises.

The third floor is given up mostly to the lunch room, which feeds six hundred at a time and which accommodates all the pupils in about two periods. The kitchen and storerooms are located on this floor as well as an overflow space which can be utilized by the drawing department.

On the fourth floor are found the gymnasium, running track, toilets, showers, lockers, and instructors rooms. The lockers are of iron and arranged in stacks and alcoves, so as to form dressing rooms for six hundred and fifty students.

The cubic contents of the building are 2,518,534 cubic feet, costing $470,000, which makes approximately 18½ cents per cubic foot. The equipment amounts to $150,000 in addition.

Tilton School. This building has been designed after a careful study of the extremely rapid growth of the outlying districts near the city of Chicago. It is planned with a broad view of the future wants, as is shown by the dotted lines on the plans which indicate some future extension of the two wings. There are several radical changes from the typical school building, the most important of which is the elimination of the basement floor, making the first floor practically on the ground level.

A rather unusual appearance results from the horizontal bands upon the exterior. These courses are made up of buff brick, alternating in the light and dark tones. The base and lower trimmings are of Bedford stone, while above the first story is substituted terra cotta, which maintains the same color and texture as the adjacent brick. The towers lend considerable interest to what might otherwise prove a monotonous and tiresome treatment of the façade and at the same time provide for toilet rooms on each floor.

Upon the interior the floors of the corridors, toilets, and stairs are of asphalt, while those of the class rooms and assembly hall are of maple, which wood is considered to be one of the best upper floorings. Southern pine is used throughout for the woodwork, with the exception of the floors just cited. The walls of the play rooms and corridors are of glazed brick, while those of the assembly hall and toilets are of enameled brick. In the class rooms burlap is used for the wainscot and plaster for the remaining portion of the walls and the ceiling.

The arrangement of the first and second floors is clearly shown on the plate which illustrates this building. The assembly hall seats seven hundred and fifty people, is centrally located, and within easy access of the main entrances. On the third floor are planned six class rooms, a gymnasium, and library. The class rooms have unilateral light with blackboards on three sides. The entrances to all the rooms are close to one of the four main stairways, which afford ample exit facilities in case of fire. The fourth floor has also six class rooms, a construction room, and teachers' toilets. Each of the class rooms is provided with a wardrobe separated by means of vertical sliding doors, upon which are blackboard surfaces. The exhaust ventilation is through the wardrobe. Impervious materials are used extensively throughout the building, especially in the corridors and toilets, making the cleaning practical as well as economical.

There are 1,421,466 cubic feet with a total cost of $216,500, which figures approximately 15½ cents per cubic foot. This makes the cost of each class room $10,825, or $216.50 per pupil. Such an amount for each scholar would be exceedingly high were it not for the fact that when the rest of the building is completed the total cost will be $315,000, which comes to $168 per pupil. The assembly hall, facilities for heating, toilets, gymnasium, manual training and domestic science departments, have been planned with a view to accommodating the forty schoolrooms, which will be the capacity of the whole building after the future extension has been completed.

New Schoolhouse at Mount Vernon, N. Y.

ALBRO & LINDEBERG, ARCHITECTS. THOMAS R. JOHNSON, ASSOCIATED.

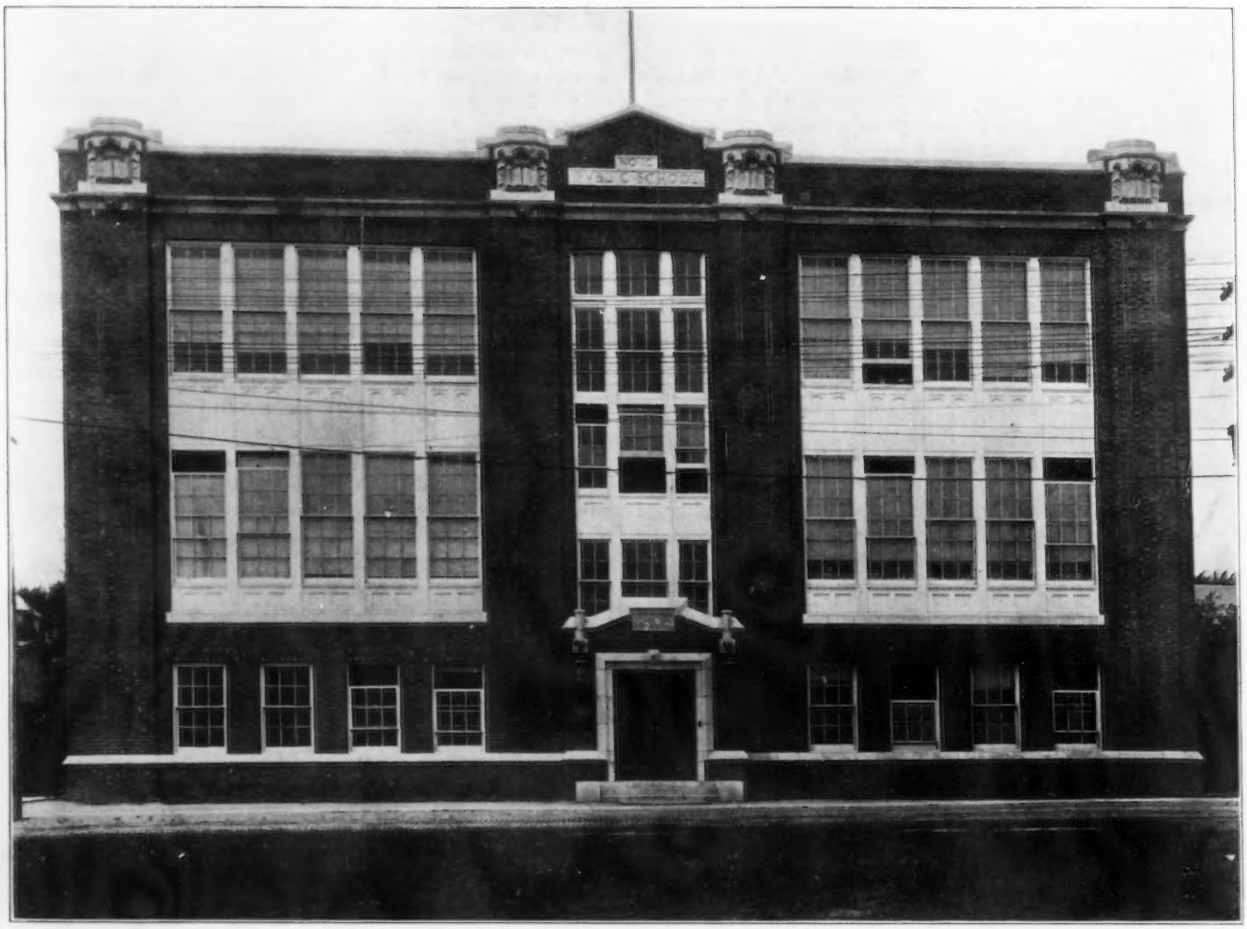
IN THIS building the windows extend practically the full length of the rooms and have very little framework to interfere with the light. The general tone of the façade is pleasing, the brick harmonizing with the gray terra cotta.

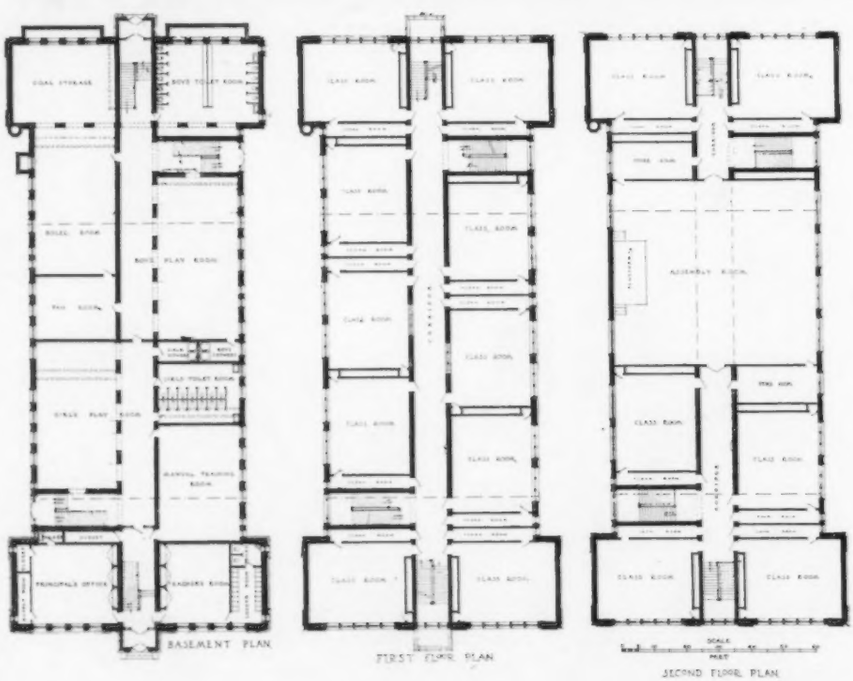
There are sixteen school rooms, each one accommodating fifty pupils. The assembly hall is large enough to seat all the students. There are two entrances to the hall, directly opposite each other, which lead to separate stairways. The two main stairs extend from the basement to the top, and have the uniform width of 5 feet. The floors of the corridors are of cement, while those of the class rooms are of hard pine. The trim used throughout is ash. The walls are of hard plaster.

The basement has four entrances, arranged so that the boys and girls may enter their respective quarters directly from the outside. One of the entrances opens into the third division, which consists of the principal's office and teachers' room. There is a wardrobe for each class room, having an outside window and two doors, one of which opens directly into the corridor. These cloak rooms are 4 feet in width.

The building is heated by the indirect system in connection with hot water, and unites with it an appropriate system of ventilation.

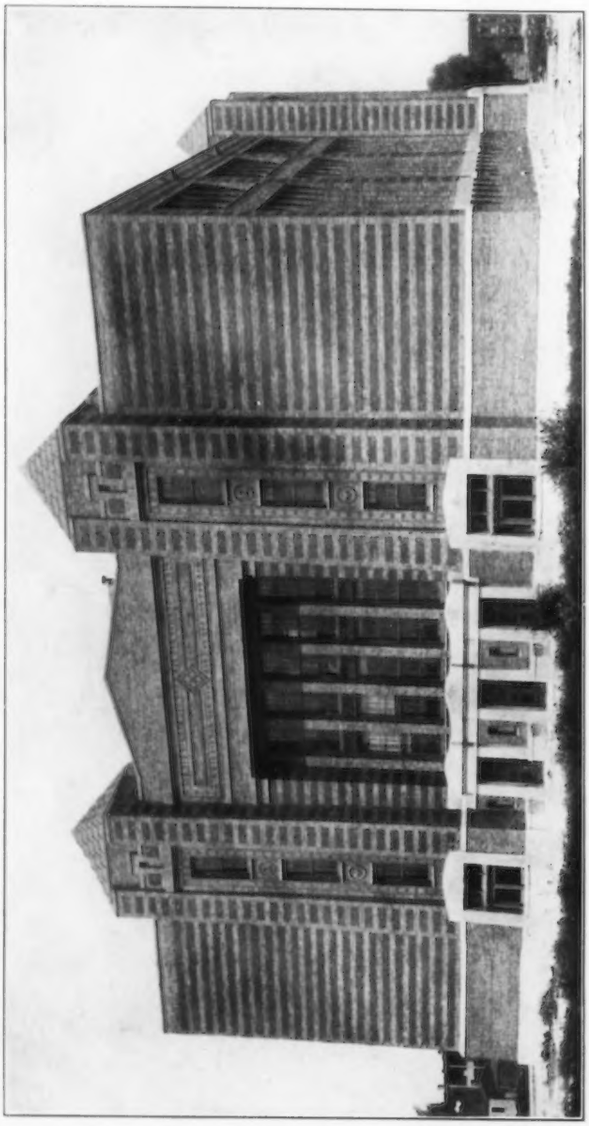
The total cost of the building, including the heating, plumbing, electric wiring, and electric fixtures, was $90,169, or 15½ cents per cubic foot.

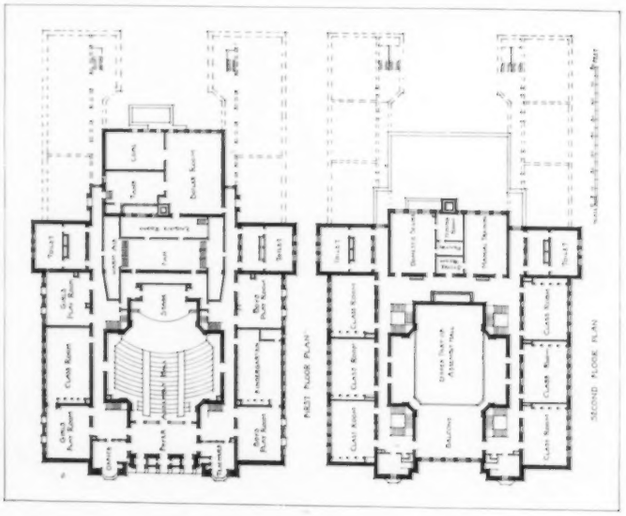


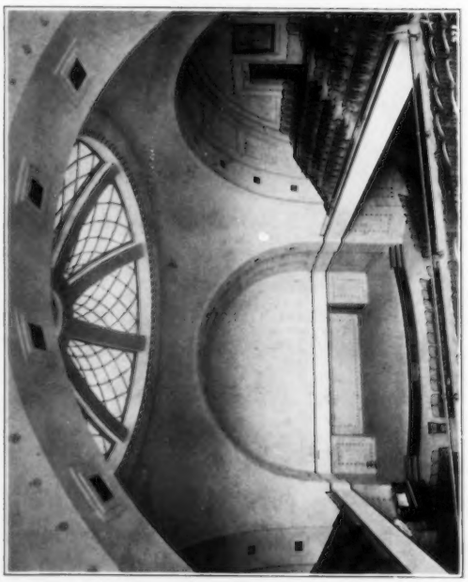


PUBLIC SCHOOL
NUMBER 10.
MOUNT VERNON,
N. Y.

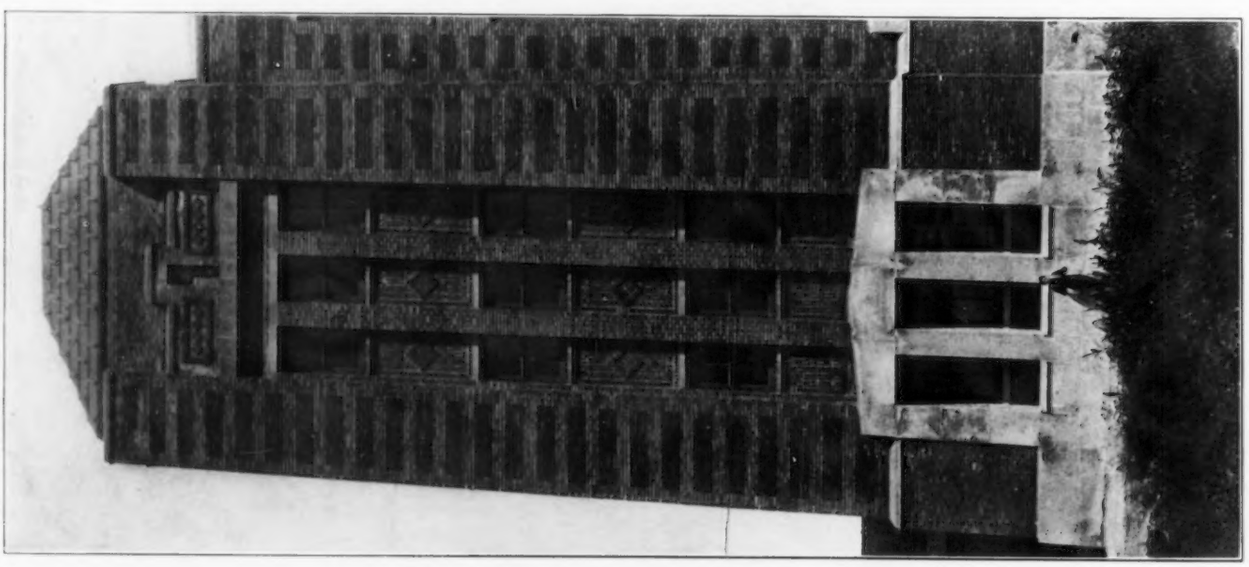
Albro & Lindeberg,
Architects.
Thomas R. Johnson,
Associated.

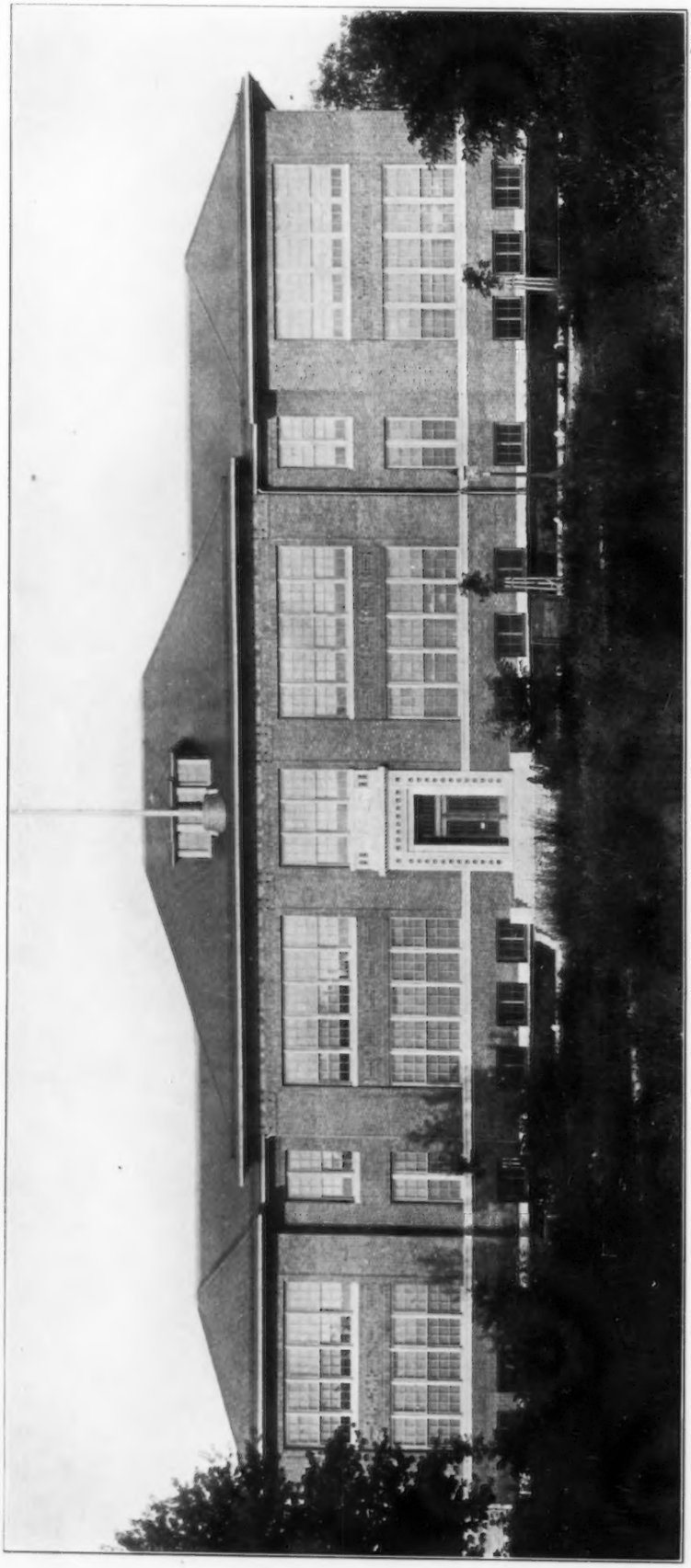


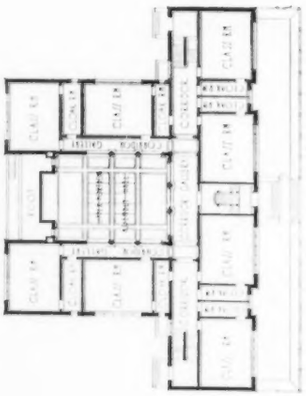




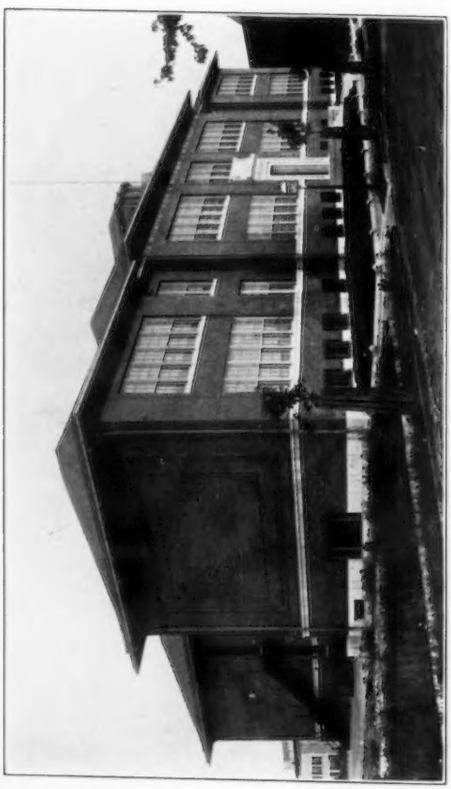
TILTON SCHOOL,
CHICAGO, ILL.
DWIGHT H. PERKINS, ARCHITECT.

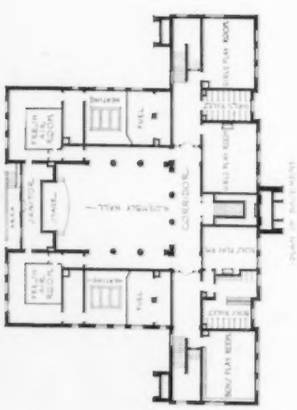




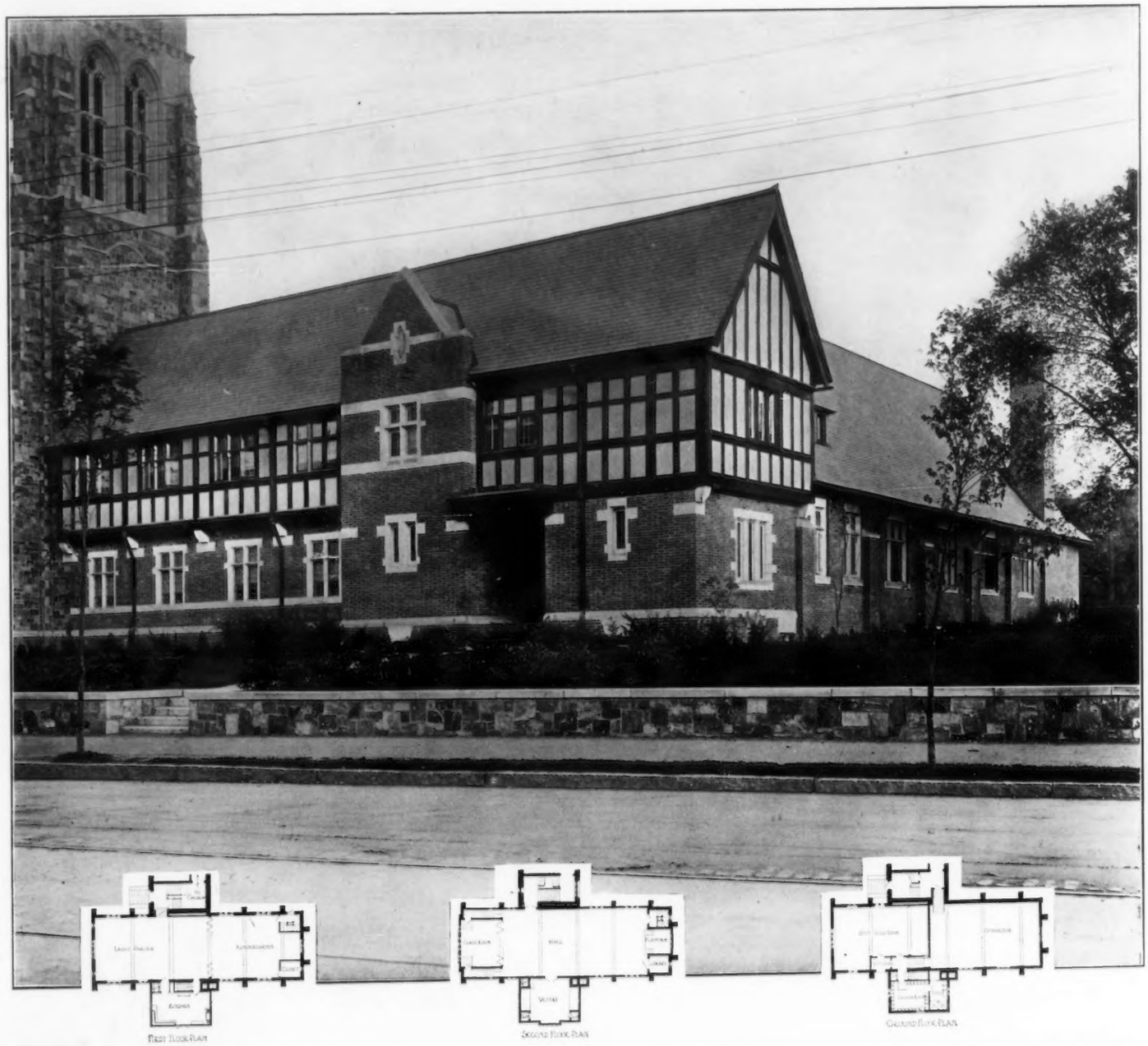


MARSH & PETER,
ARCHITECTS.





HENRY D. COOKE SCHOOL,
WASHINGTON, D. C.



PARISH HOUSE
FOR
UNITARIAN CHURCH,
WEST NEWTON,
MASS.

CRAM, GOODHUE
&
FERGUSON,
ARCHITECTS.

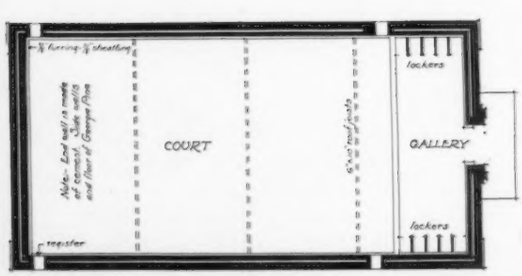
THE BRICKBUILDER.
VOL. 18. NO. 11.
PLATE 143.

SQUASH COURT,

NORTH EASTON, MASS.

COOLIDGE & CARLSON,

ARCHITECTS.

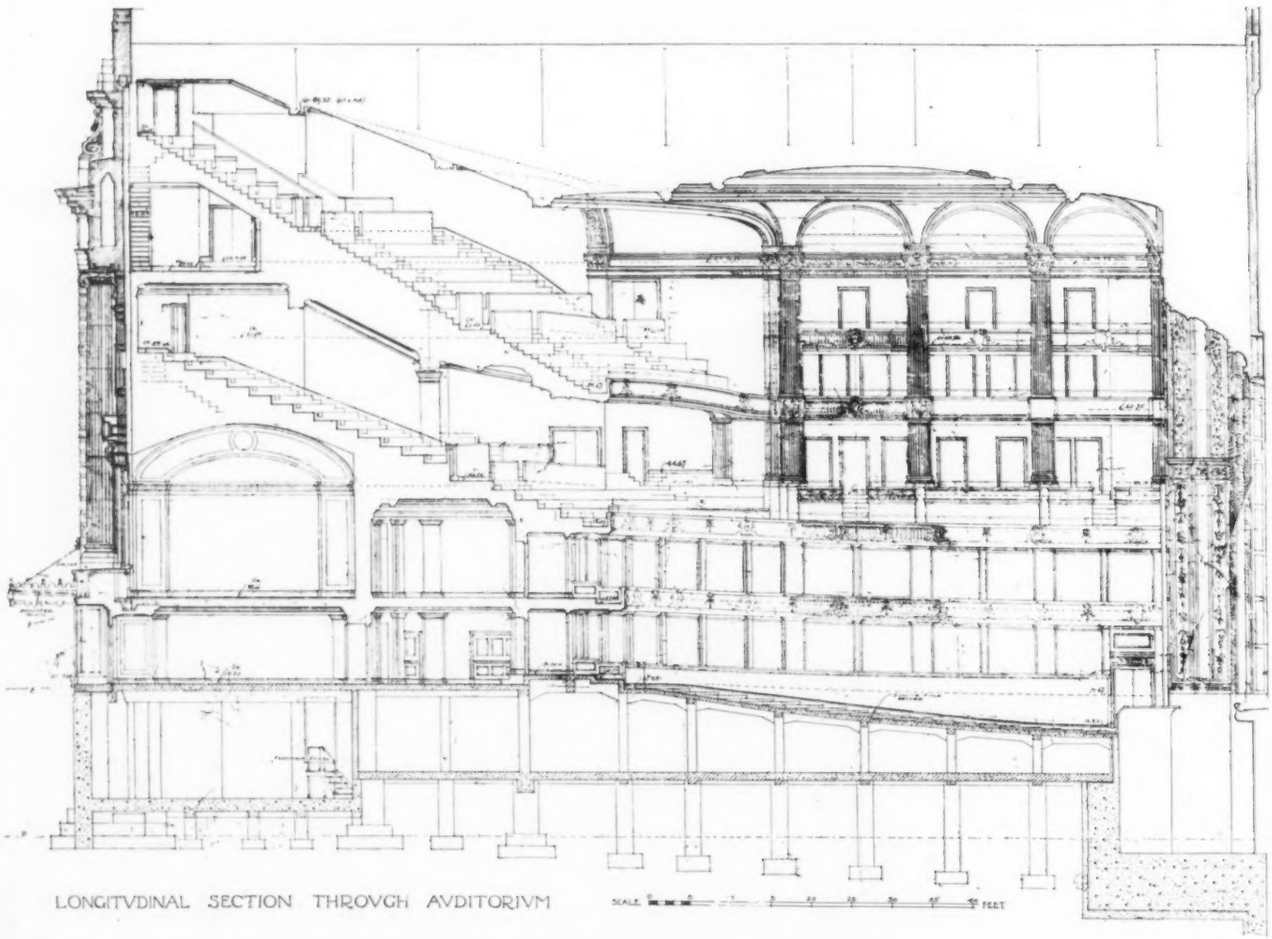


Note:— Brick on exterior has black headers—marble trimmings & wood cornice.

PLAN OF SQUASH COURT

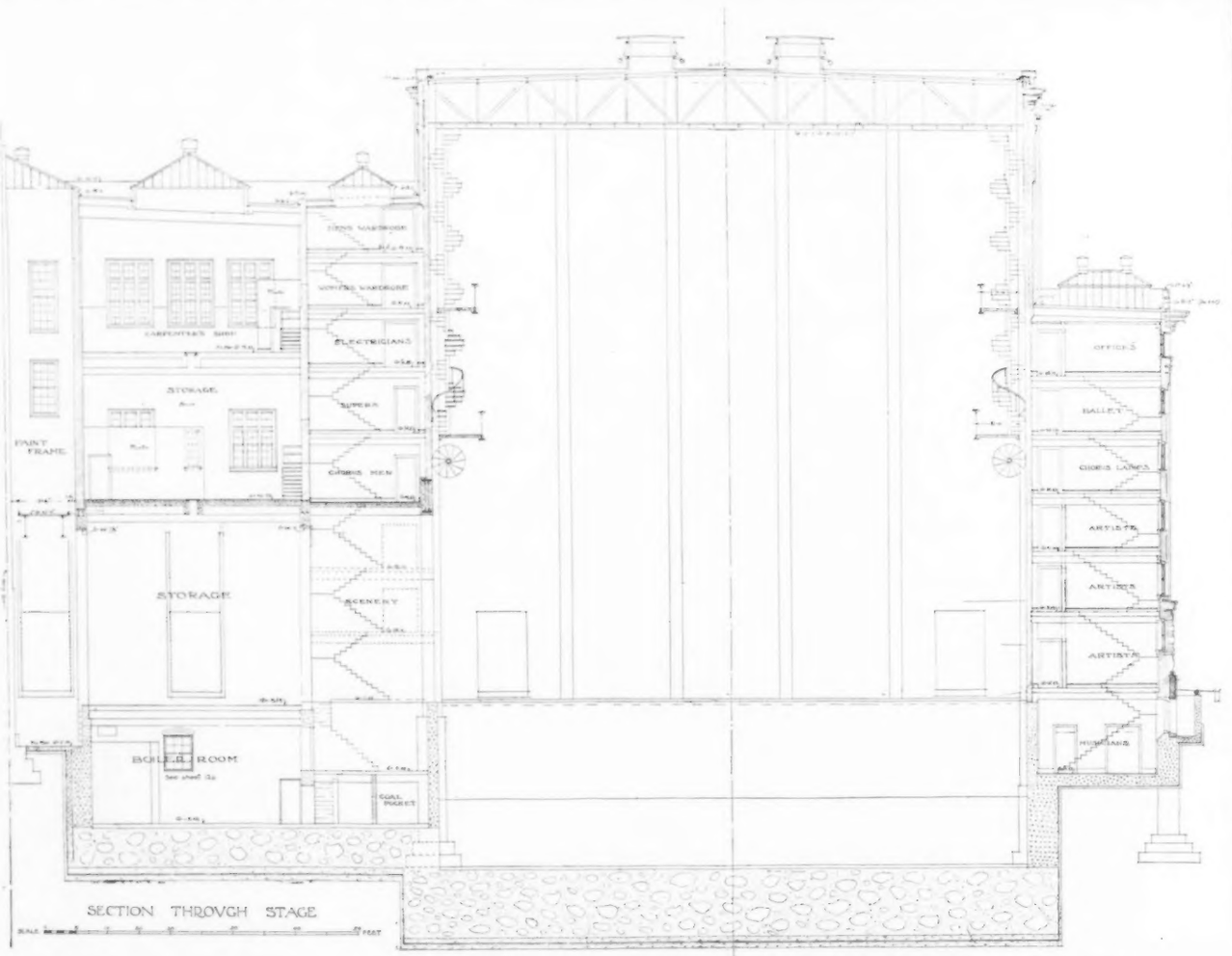
SCALE 1/8 FEET

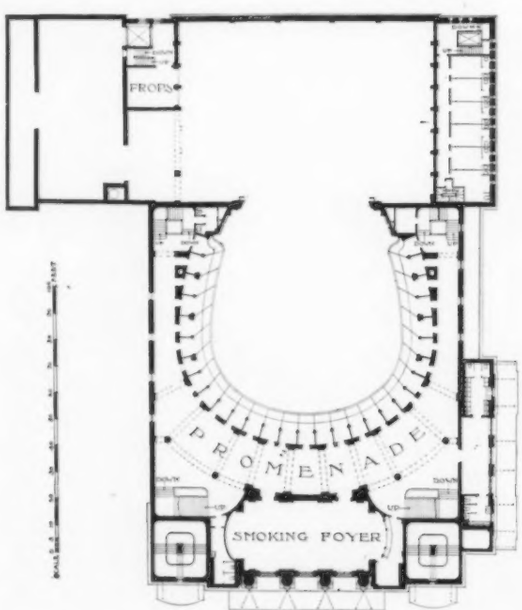
Note:— Floor of gallery is 4'-6" above the finished floor of the court.

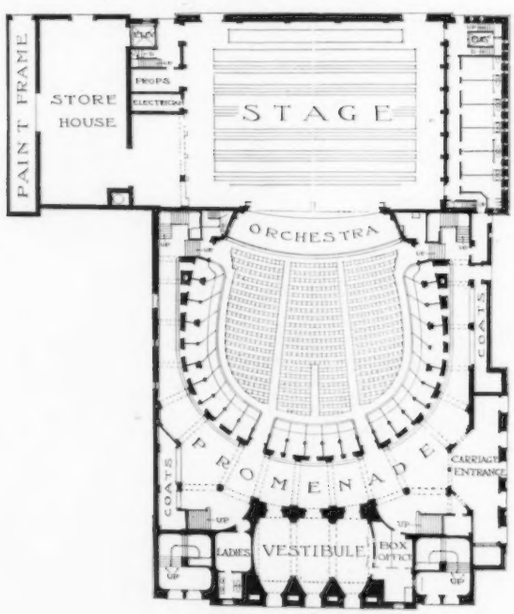


LONGITVDINAL SECTION THROVGH AVDITORIVM

BOSTON OPERA HOUSE, BOSTON, MASS.
WHEELWRIGHT & HAVEN, ARCHITECTS.





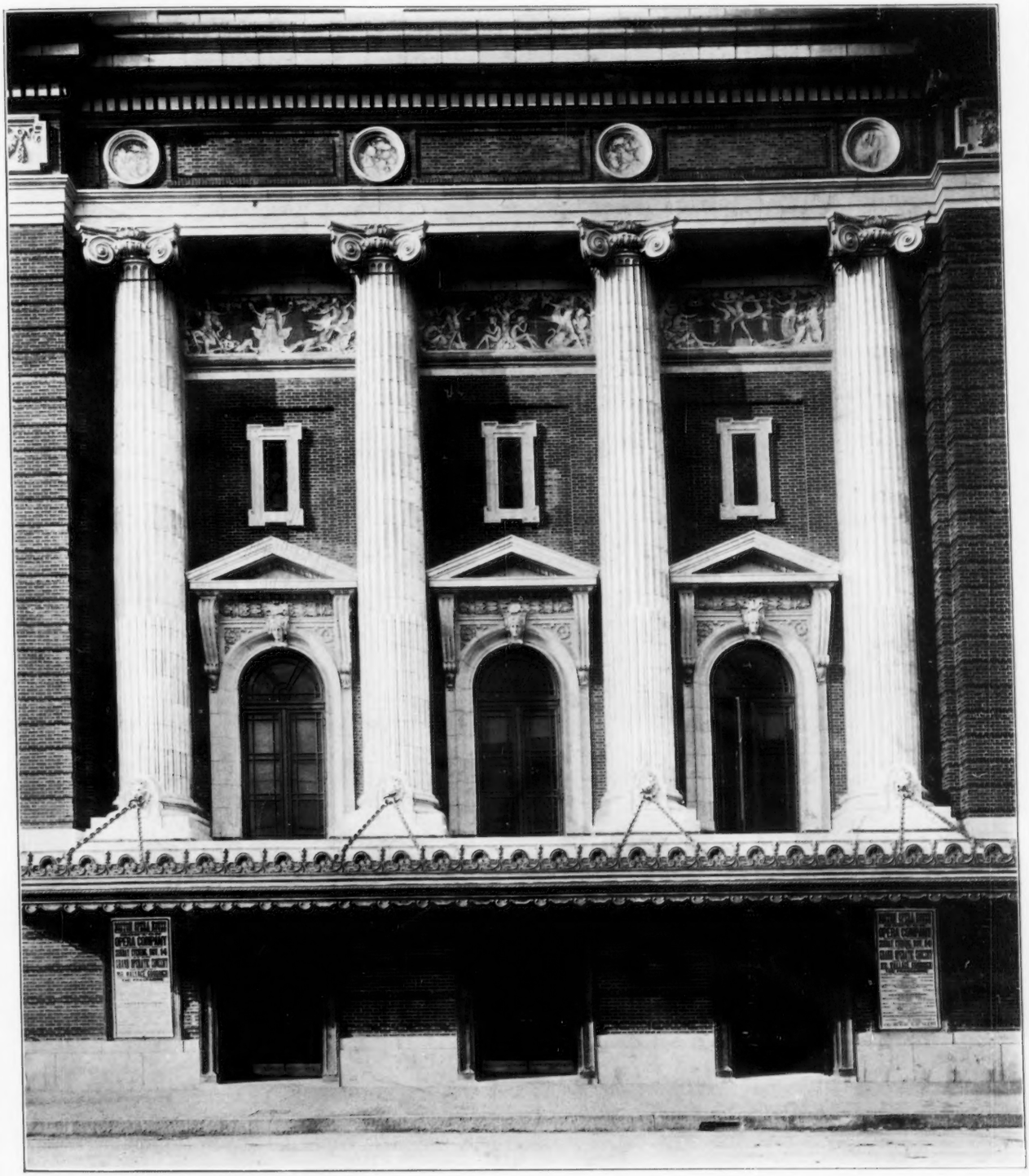


SECTION AND PLANS.

BOSTON OPERA HOUSE, BOSTON, MASS.

WHEELWRIGHT & HAVEN, ARCHITECTS.

BOSTON OPERA HOUSE, BOSTON, MASS.
WHEELWRIGHT & HAVEN, ARCHITECTS.

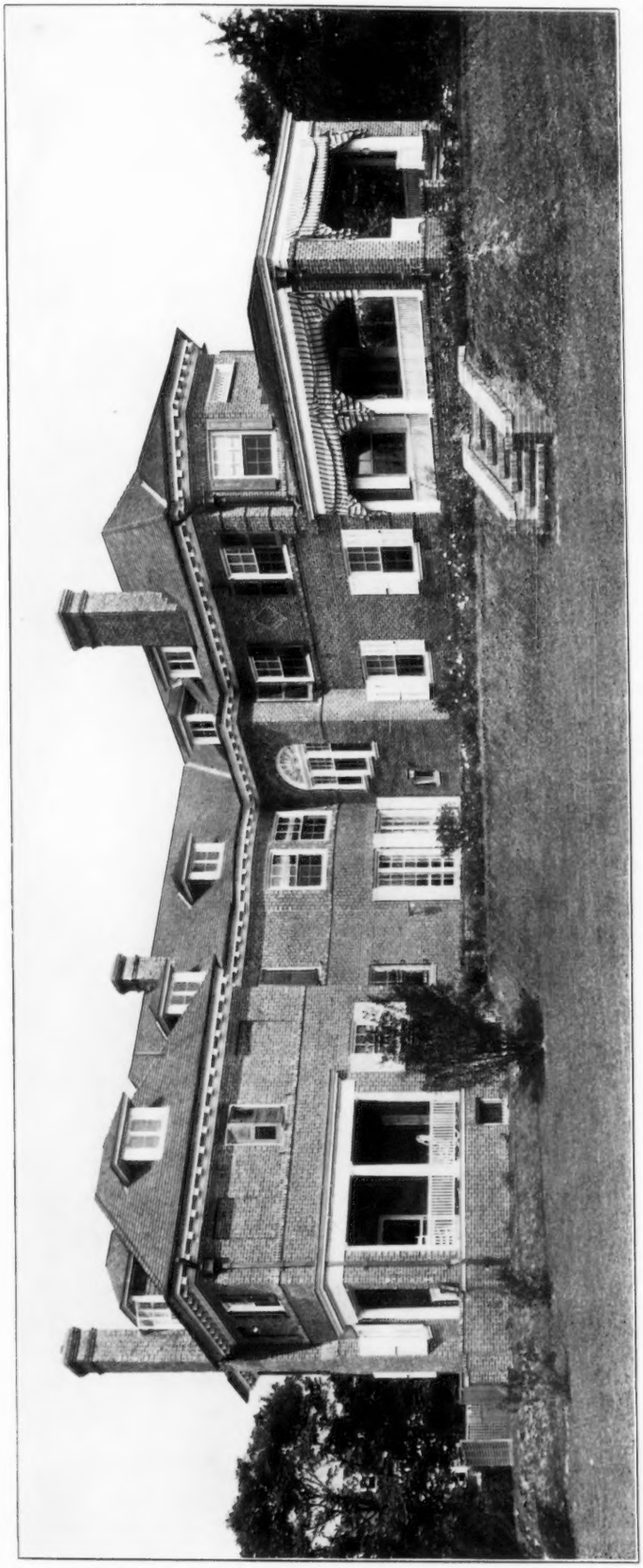


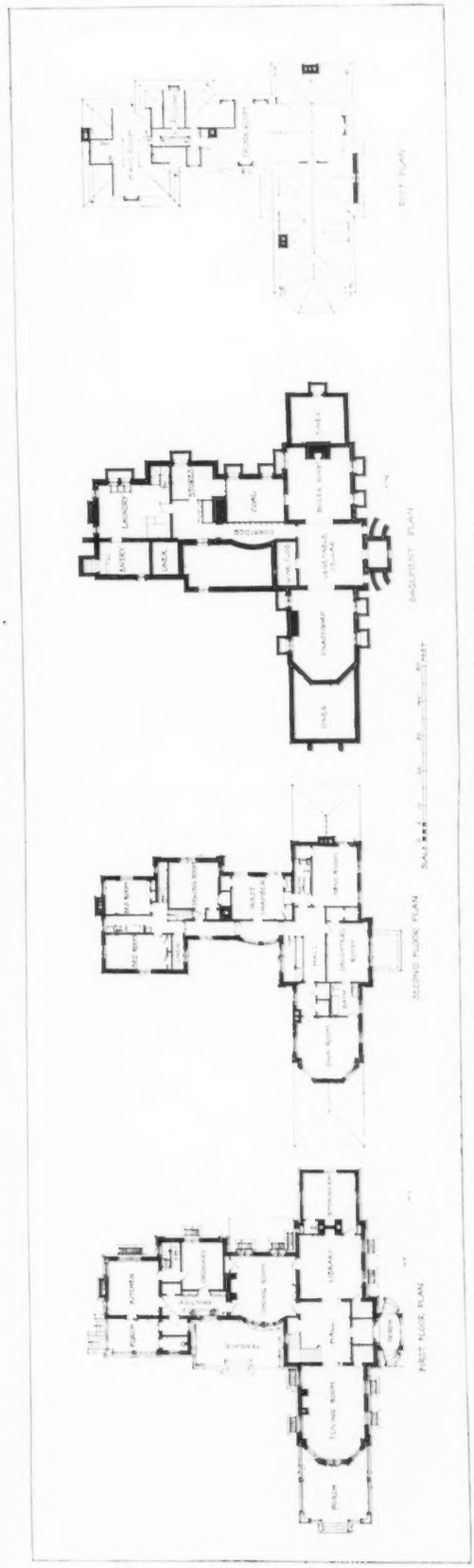
DETAIL OF MAIN ENTRANCE.

BOSTON OPERA HOUSE, BOSTON, MASS.

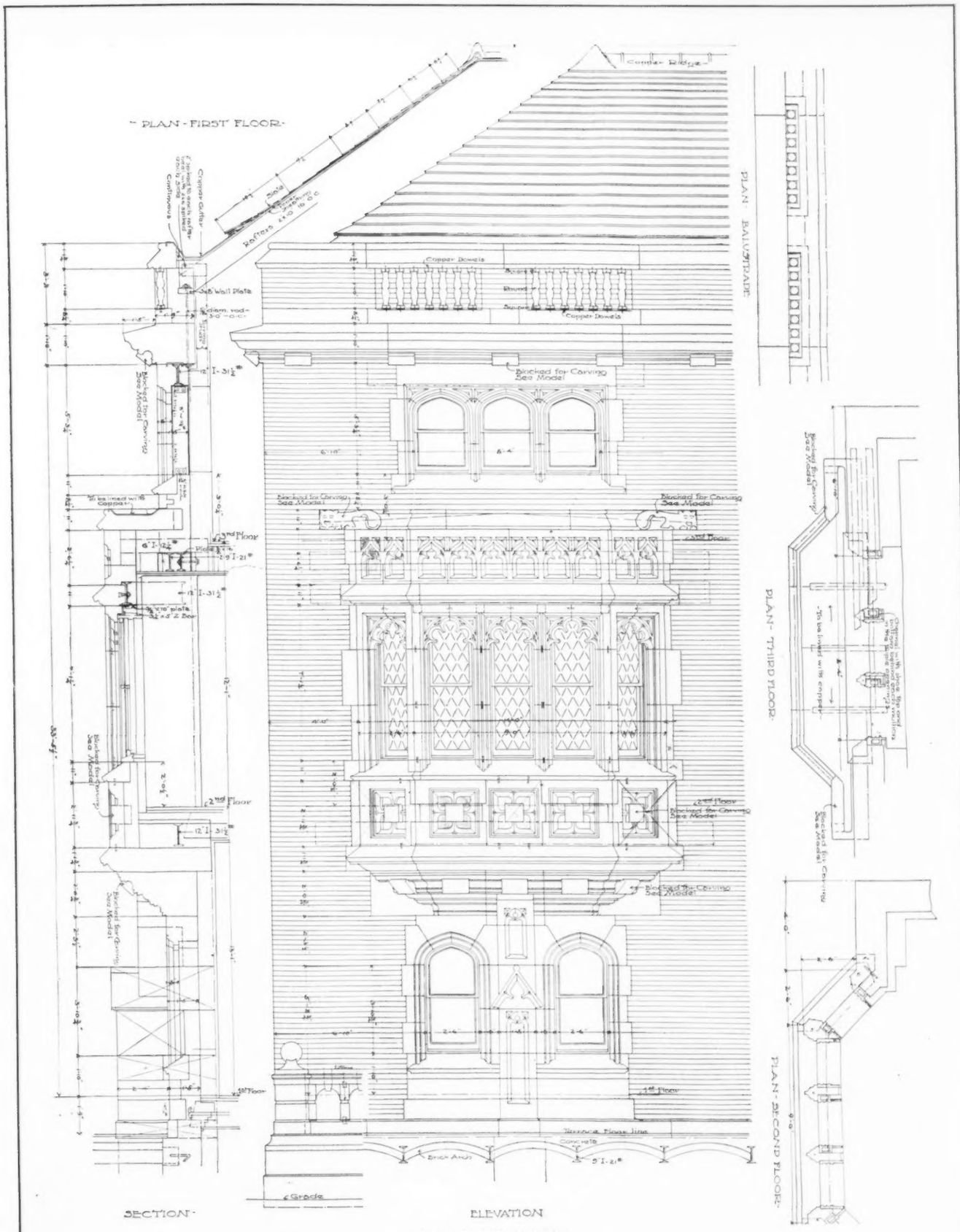
WHEELWRIGHT & HAVEN, ARCHITECTS.

HOUSE AT CHESTNUT HILL, PHILADELPHIA, PA.
NEWMAN & HARRIS, ARCHITECTS.





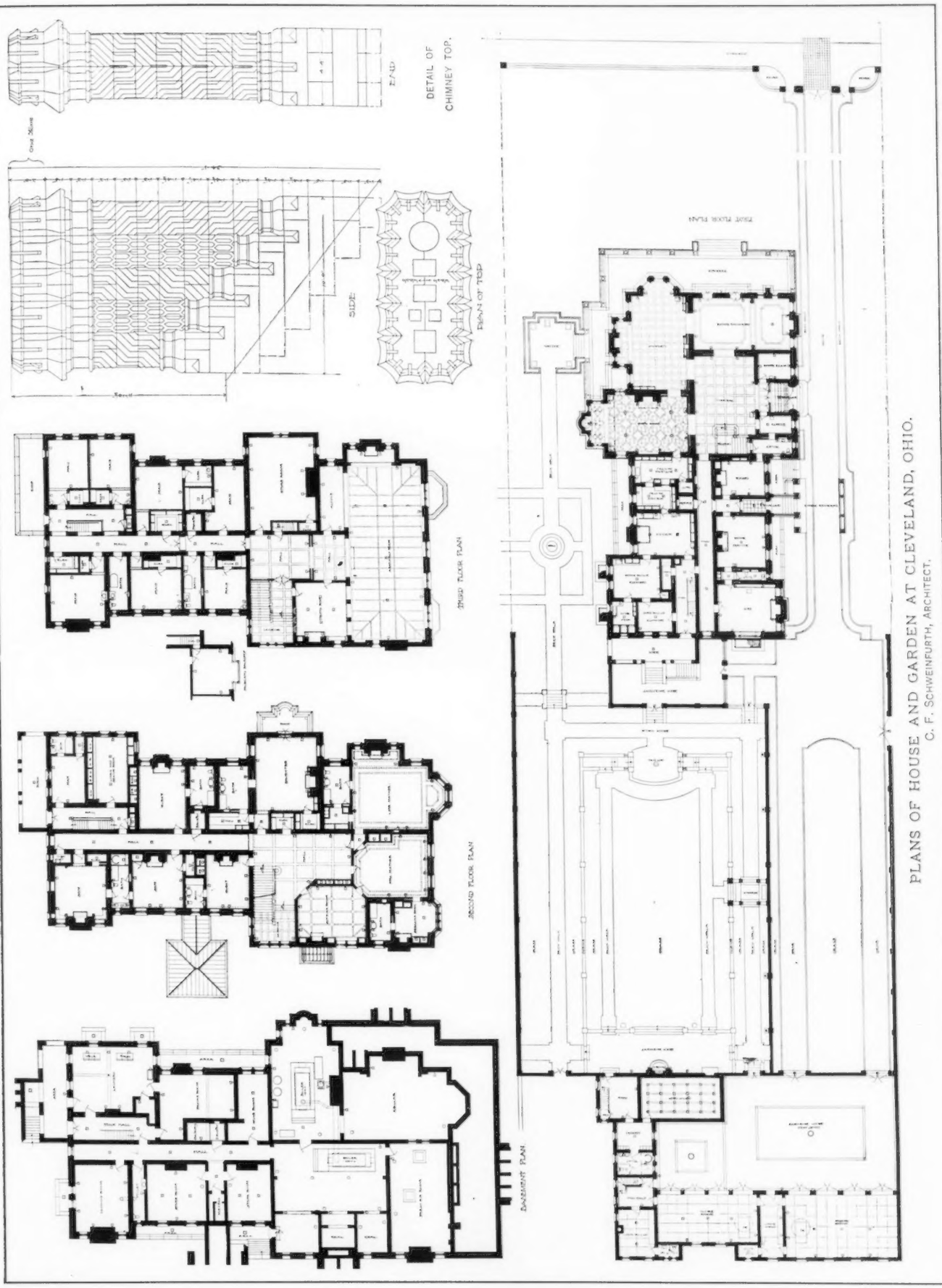
HOUSE AT CHESTNUT HILL, PHILADELPHIA, PA.
NEWMAN & HARRIS, ARCHITECTS.

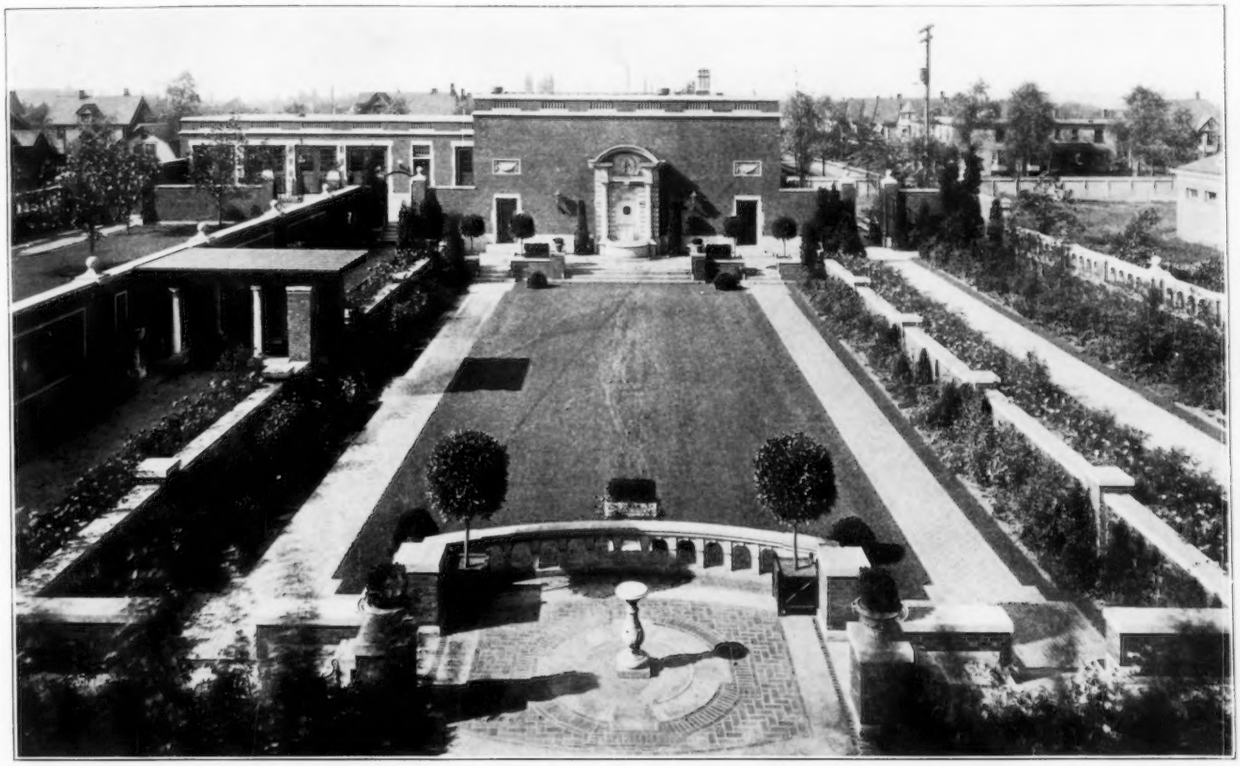


DETAIL OF ORIOLE WINDOW.

HOUSE AT CLEVELAND, OHIO.

C. F. SCHWEINFURTH, ARCHITECT.


END
DETAIL OF CHIMNEY TOP.
SIDE
PLAN OF TOP
THIRD FLOOR PLAN
SECOND FLOOR PLAN
BASEMENT PLAN
FIRST FLOOR PLAN
PLANS OF HOUSE AND GARDEN AT CLEVELAND, OHIO.
C. F. SCHWENFURTH, ARCHITECT.

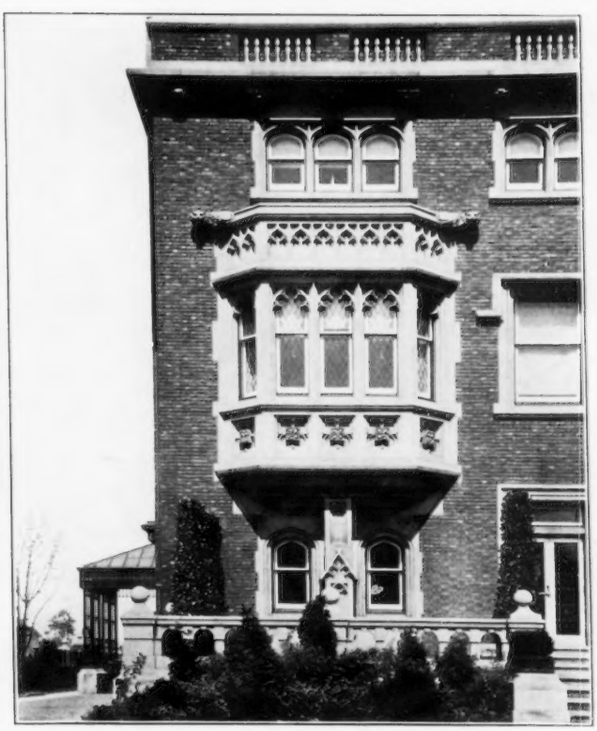


GENERAL VIEWS OF GARDEN.

HOUSE AT CLEVELAND, OHIO.

C. F. SCHWEINFURTH, ARCHITECT.

DETAIL OF FOUNTAIN.



DETAIL OF ORIOLE WINDOW.

HOUSE AT CLEVELAND, OHIO.
C. F. SCHWEINFURTH, ARCHITECT.

Terra Cotta: Its Character and Construction—II.

BY CHARLES U. THRALL.

REFERRING again to what has been said concerning the designing of columns to be executed in terra cotta it needs to be emphasized that when an architect decides that a column shall be of terra cotta, and then disregards entirely the character of the material he has chosen, the result is almost invariably a failure, but when he will stop long enough to design a column that will be practical for terra cotta, he has made possible the first requisite of an artistic result, viz: good workmanship.

Because of its qualities, whether considered from the esthetical standpoint, the structural, or the physical, terra cotta is unexcelled as a building material for the modern tall building, and especially so on account of its lightness and conformability to the steel structure. In regard to its lightness, there are hundreds of dollars saved by its use as compared to stone, not only in freight charges but in the cost of the steel structure itself, which may be much lighter for a terra cotta building than for a stone building.

In the smoky cities of the west the non-absorbent surface of glazed terra cotta is the only surface that can be washed clean, and on that account white glazed terra cotta is coming into general use for this purpose, for once a year, at least, when the annual "wash day" arrives, the building built of this material stands out as white as the new fallen snow. The plates which accompany these articles will demonstrate the ease with which it may be molded to the adjoining materials, especially to the steel supports of the building, while its color possibilities may be used, not only for polychromatic design, such as the Academy of Music, Brooklyn, but also for most practical purposes.

The conformability of terra cotta to other building materials, especially to structural steel and reinforced concrete, is shown in the dome of the First Church of Christ, Scientist, at Boston, which is illustrated by Plate 4. It is a simple though ingenious and very practical arrangement of concrete, steel, and terra cotta. The inner dome was made of reinforced concrete, very thin, intended to be self-sustaining but not necessarily carrying any additional load. The inner surface of the dome was intended to be decorated with mural paintings at very great cost, and therefore these should have ample protection from leaks which might mar their beauty. To obtain a water-tight roof the architects put 4 inch by 4 inch "T" irons extending upward from the base of the dome to its apex, the nib of the web resting on the exterior face of the concrete, but in such manner that practically no weight was transmitted to the concrete dome. Outside of these were placed smaller "T's" that formed hoops around the dome and were bolted or riveted to the uprights, these hoops forming shelves to receive the terra cotta exterior to the dome.

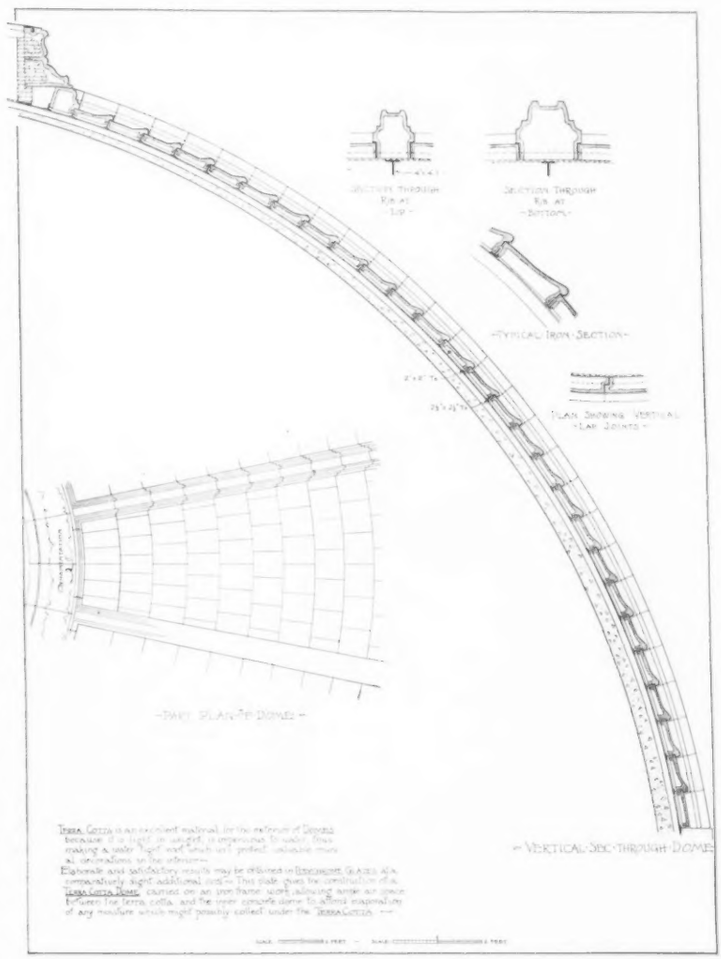


PLATE IV.

In the construction of a terra cotta dome the weight of the upper courses bearing down on those below causes a tendency to buckle at about one quarter the height of the dome unless the terra cotta is anchored back in some manner. The method shown on Plate 4 obviated this tendency as the weight of each course was carried on one of the iron hoops. There was also afforded ample air space to evaporate any moisture that might possibly collect under the terra cotta, and as a further protection from leaks water-tight joints were formed both vertically and horizontally.

Owing to the monumental character of the edifice, all of these precautions were deemed advisable, yet they

were accomplished at a minimum cost, the concrete and steel being very light because the terra cotta blocks were so light (and in this case made thinner than ordinarily). The terra cotta was very inexpensive in comparison to other materials because of the duplications of like pieces, it being necessary to make molds of only one rib and one or two pieces of each course of one field. The cutting of the tapering rib and the curved faces of the field pieces would be very expensive in any other material. The dome was surmounted by a heavy ornamental course, above which was the lantern. This course was open at the back, into which was built the brick backing. A raggle was provided to receive a copper flashing above. It was necessary to make a mold of only two of the pieces forming this course.

The surface of the terra cotta for this dome is glazed, of a peculiar yellow color which catches the sunlight and reflects it so brilliantly that the dome attracts the eye almost as forcibly as the gilded dome of the State House.

Plate 5 illustrates another idea of combining terra cotta and concrete, forming a vaulted ceiling with a monolithic body. This plate shows a ceiling in the state entrance of the Union Station at Washington and was built of granite colored terra cotta resembling the granite of the main walls. After the terra cotta was all set on the wooden center, the concrete was poured into the open spaces in the back of the pieces and carried up to the required thickness, a very simple and inexpensive process. The converging moldings of the panels of such a vault are very expensive to make in any material, but in the case of terra cotta it is necessary to make molds for only four panels, one in each course, instead of thirty-six (36), the other thirty-two (32) panels being pressed at very slight cost from these molds. In addition to this the bond of the terra cotta blocks is very small, but with the concrete, although thin, will carry all the weight imposed. Therefore, the economy in the amount of materials used by this method, as well as their inexpensiveness, is of great importance. The joints of the terra cotta are all so placed as to permit such trimming as is necessary to produce proper alignment. Such a design treated in color would be most effective.

Plate 6 shows how the same idea was applied to other vaulted ceilings on the same building, the arches as well as the ceilings being backed with concrete, but in the case of the arches very much thicker, on account of the weight they have to carry. Note the arrangement of the joints in the ceiling so that the pieces would approximate the same size in all courses and thus avoid extremely long and impractical pieces in the outer courses. The first and second courses from the center have the same number of pieces, but the third course has two pieces for every one in the first and second course, whereas the fourth course has three pieces for every two of the third course, etc. Where the courses were cut by the granite arches the joints were arranged so as to coincide to some extent with some of the lines of the granite.

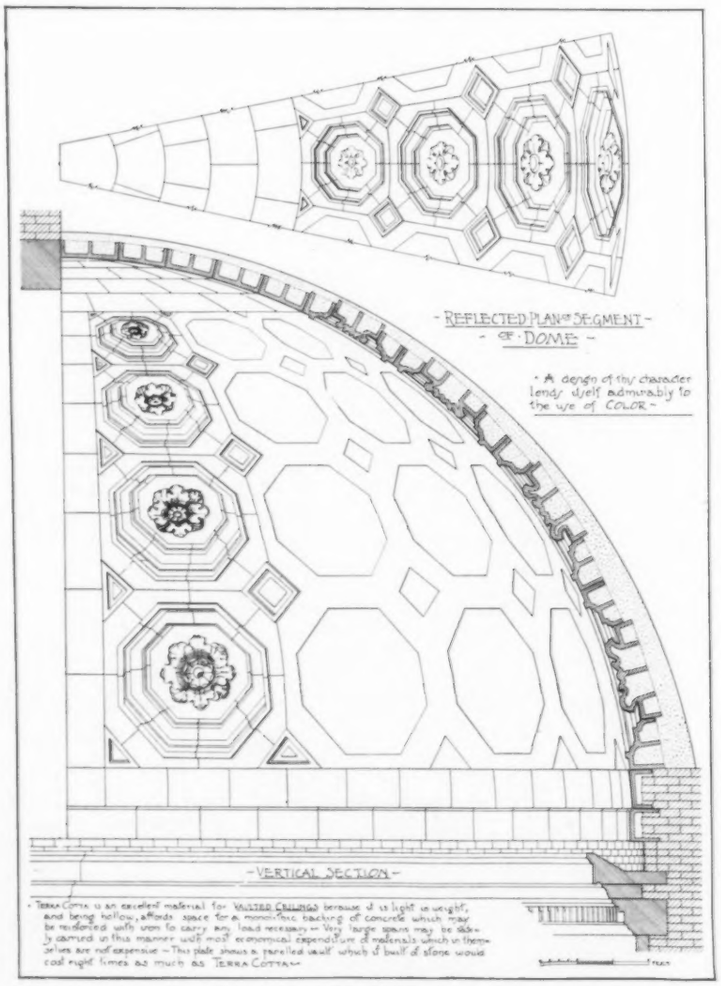
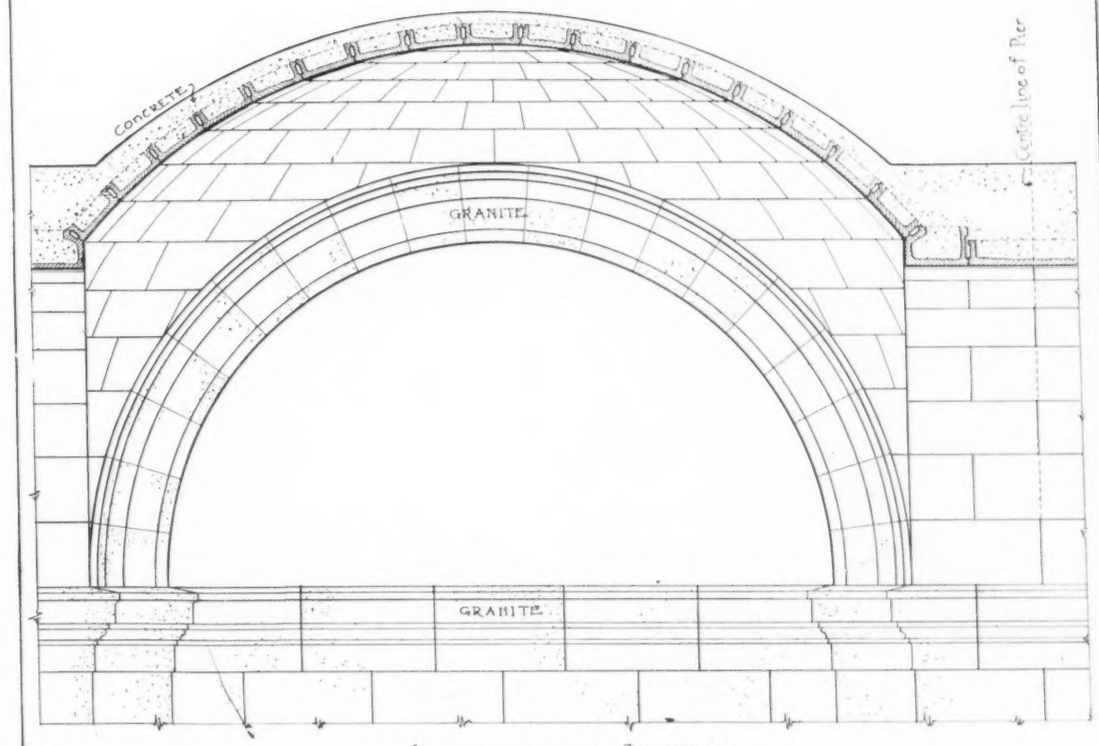


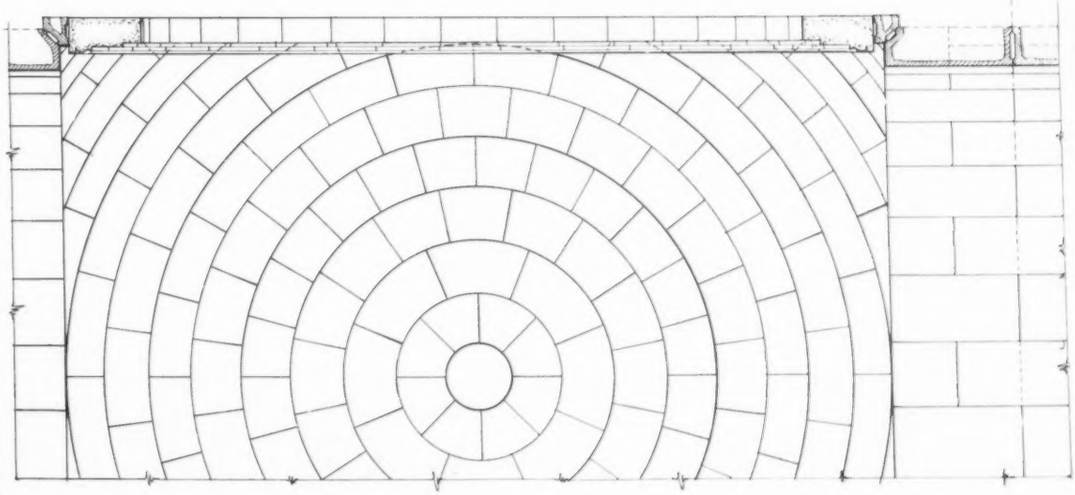
PLATE V.

The reinforced concrete building properly requires an outward covering which may have an artistic treatment, and terra cotta is more suitable for this purpose than any other material, because it may be made very thin, and, on account of its lightness, may easily be anchored to the wall, the hollow spaces being then filled with concrete, so as to bear such crushing strains as may be imposed upon it.

The terra cotta, especially if glazed, also fulfils the practical purpose of acting as a waterproof face for the absorbent concrete and protects it from the action of frost or fire better than any other material would. Owing to the shrinkage, swelling and warping of the plank forms into which the concrete is poured to form the walls of such a building, it cannot be expected that those walls



~ LONGITUDINAL SECTION ~



~ REFLECTED PLAN OF DOME ~

~ SCALE 1" = 2 FEET ~

Design of a VAULTED CEILING in connection with GRANITE ~ The terra cotta is backed with concrete which fills the voids in the terra cotta, making a most economical and absolutely safe construction ~ The above design was supplied to Mr. Burnham for the Union Station at Washington. Domes of various sizes being built in this manner ~ The terra cotta was an exact match in color for the adjoining granite giving the impression of granite vaults, at one third the Cost ~

PLATE VI.

will be very accurate in their dimensions. This inaccuracy makes it necessary to arrange methods of adjusting the terra cotta to the concrete. For instance, holes are arranged in the plank forms through which are laid anchors which are embedded in the concrete when it is poured, but the location of these holes may not coincide with the exact position of the anchor holes or joints of the terra cotta. To overcome this difficulty holes are arranged in the ends of the terra cotta blocks through which are passed small rods around which are bent the anchors (see Plate 7). The top bed of the terra cotta is cut away so that the workman may put his hand inside the blocks and bend the anchors. The block is then filled with cement or fine concrete, if desired, and the next block is built upon the one set, there being a running dowel on the bottom of each piece to fit into the open space of the piece below, and in this way both the and adds to the cost of manufacture, as each piece has to be cut by hand.

Notice how the lintel course is carried on an iron plate bolted to the concrete. The holes in this plate should be slotted so as to allow adjustment, as the location of the bolts may be inaccurate unless the plate is put into position before the concrete is poured.

The bolt and clip shown in the third course at "B-B" is an excellent anchor for the large courses and a frequent setback in the wall is desirable to take the weight off of the courses below and thus prevent buckling. On account of the inaccuracies in the building plenty of space, say one inch or more, between the terra cotta and the concrete, should be allowed to prevent the necessity of cutting any of the terra cotta at the building, which is always an expensive operation, delaying the work. The same amount of space should be allowed where terra

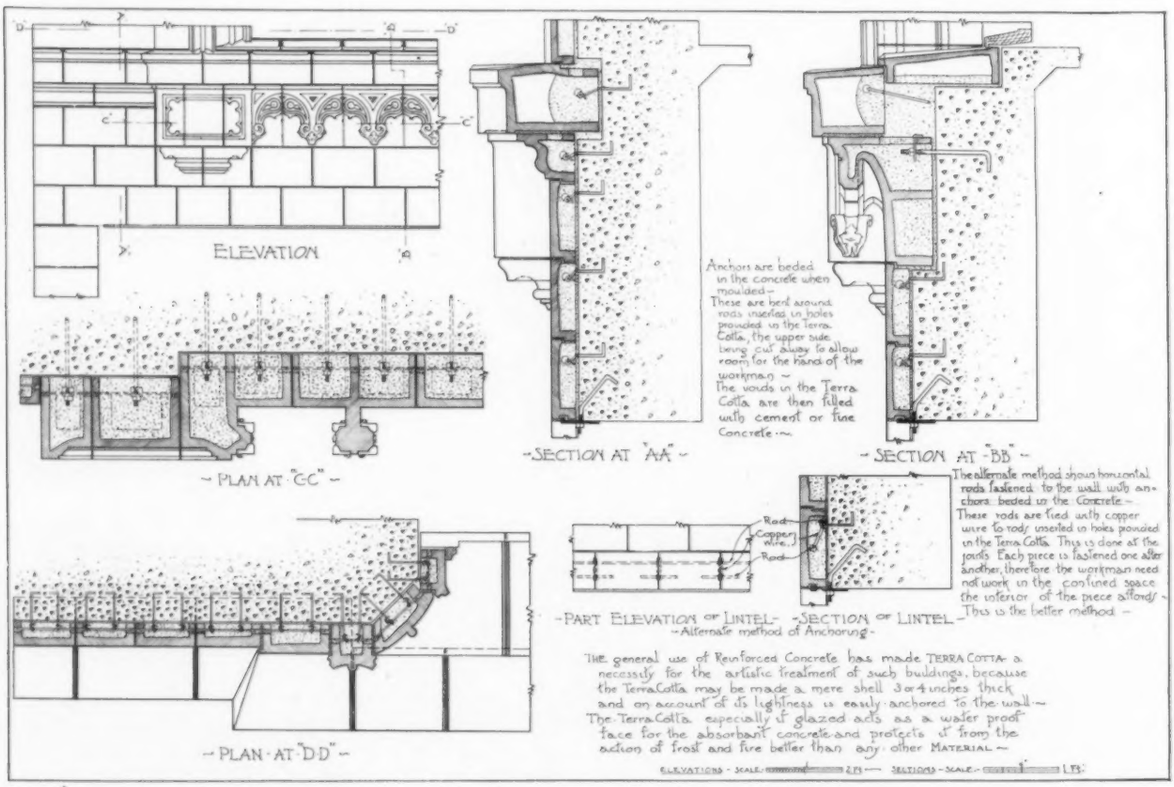


PLATE VII.

top and bottom of each piece are held in place unaffected by any inaccuracy in the wall or location of anchors. A better method in some respects is to fasten rods along the face of the concrete wall by bending the anchors around them, and as each piece is set, put a small piece of rod in its end, and with wire tie this piece of rod to the rod anchored to the wall, keeping the wire close up to the piece, so that when the adjoining piece is set the rod will fit into a hole in its end and the wire be confined in the joint. By this means the workman will have open space in which to work, and the top bed of the terra cotta need not be cut away. To cut this bed away weakens the pieces, makes more likelihood of breakage, cotta is used in connection with steel, as will be explained in a subsequent article.

One of the advantages of the use of terra cotta in connection with a reinforced concrete building is that no time need be lost waiting for the wall facing, as the building may be practically finished before beginning to set the terra cotta.

The idea embodied in the examples set forth in this article, all of which have been actually built, is that terra cotta is a veneer and may properly be used as such, in fact, it should be used as such; yet owing to the hollow space in the back of the pieces it is a veneer that becomes incorporated into the wall with no possibility

of becoming detached. It is such examples as these that express the real character of terra cotta, displaying its practicability and its beauty, but without an intimate knowledge of that character on the part of the architects who design these features the happy results obtained would have been impossible. Therefore, architects who have not had a large experience in the use of terra cotta, or those whose ambition gives them courage to step into untrod fields, need the cooperation of the manufacturers which for obvious reasons the manufacturers are only too glad to give, to work out, not only such novel features as those mentioned in this article but those of more every day occurrence as well as those of color and texture.

The leading manufacturers have in their employ graduates of the best technical schools and universities, such as architects and ceramic chemists who are studying the various problems that arise, keeping abreast of the advanced thought in science, art, and construction, and who are always at the command of architects to demonstrate the great possibilities of this material in American architecture.

Plate Illustrations—Description.

Parish House for the All Saints' Church, Dorchester, Mass. The half timber work on the exterior is of plain oak and tones in with the gray of the wire-cut brick. The roofing consists of slate. Upon the interior of the Parish House the woodwork is of stained cypress, and the walls of plaster, except in the gymnasium where brick is used. The cost of the entire building, including heating, plumbing, and lighting, is $30,000. The cost per cubic foot is 19 cents.

McAllister House, Philadelphia, Pa. This residence has been constructed on a lot approximately two hundred and fifty by three hundred feet, with gardens laid out after the manner of the English in their general planting. The exterior treatment is of the English Georgian style and built of dark red brick with a purplish tinge running throughout. Upon the interior the colonial style prevails also. The dining room is paneled in white, the hall has an open string stairway with carved ends, white spindle balusters, mahogany rail, and spiral starting newel. White pine is used throughout the interior for all woodwork except the floors, which are of oak. The cost of the house is approximately thirty thousand dollars, or about thirty cents per cubic foot.

Boston Opera House. The exterior of this building has been treated in red brick and a dull glaze terra cotta of a cream tone with occasional touches of light blue. Provision has been made, exclusive of the main entrance, for a carriage entrance from the side; both have separate entries into the main foyer.

The floors of the entrance hall, the foyers, and the palm room are a combination of marble and terrazzo. The walls and ceilings are of hard plaster with a general tone of French gray. The stairs are constructed with steel and reinforced concrete with marble covering. The balustrade is of cast-iron with a mahogany rail.

The general color scheme of the auditorium is a dull gold against a quiet gray background. The ceiling decorations have some light blue in addition to the gold and gray. The upholstery and hangings throughout the main auditorium are in warm red. The seating capacity is 2,750.

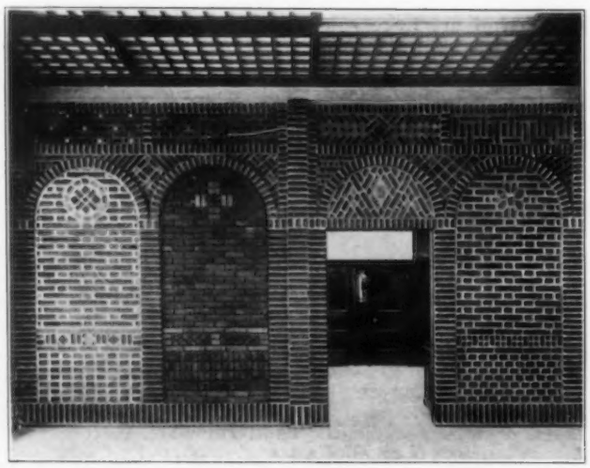
The ventilating system is designed to furnish each person with 1,200 cubic feet of fresh air per hour. The air is taken from the roof into a shaft 75 feet square and heated to 68° F. Thence it is discharged into three large plenum chambers under the auditorium and balconies, from where it is forced under pressure through metal tubes to an inlet underneath every seat in the building. The vitiated air is drawn through vent grilles located in the ceilings, carried through galvanized iron ducts to the main vent chamber and discharged from the building. Each opera box has a separate supply of fresh air. The heat loss on the exposed surfaces is counteracted by means of direct radiators controlled by thermostats.

Henry D. Cooke School, Washington. The building is located in one of the most charming parts of Washington, within easy access of the car lines and yet removed far enough away from the main thoroughfare to escape the annoyance that arises when a school is located on a street of traffic. Nothing obstructs the sunlight or prevents a free circulation of air. Ample space surrounds the building, providing playgrounds and an excellent opportunity for gardens wherein the principles of agriculture and horticulture may be taught.

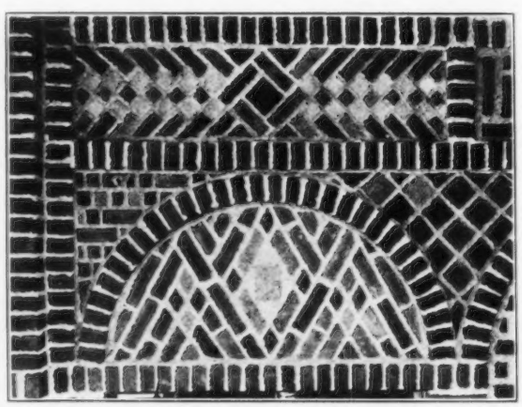
The building maintains a simple dignity, and demonstrates that a pleasing architectural effect can be produced by keeping the surfaces somewhat plain and with the ornamentation adapted to the general character of the whole building. The hard red bricks are laid in Flemish bond, with wide mortar joints, and relieved by the special architectural treatment at the entrance and in the frieze and window panels, where the pattern work consists of red brick and green tiles. The base of the building is granite, while the other trim is sand-blast white terra cotta. All the exterior woodwork, including the projecting soffits of the roof, is colored sage green, which harmonizes with the tones of the other materials.

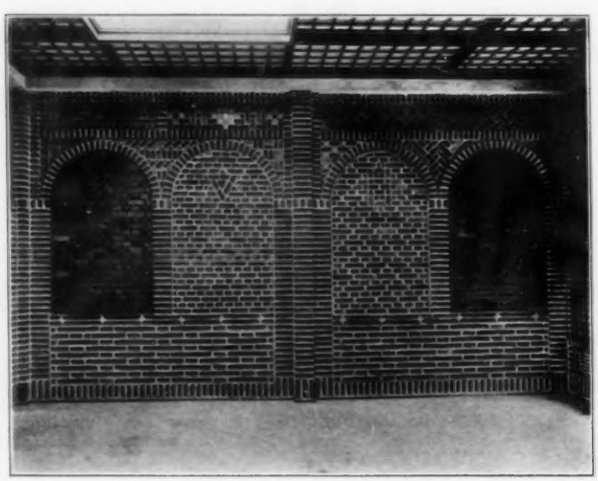
The building contains sixteen class rooms, each one of which has a cloak room and ample unilateral light, and an assembly hall which extends through the basement and first story with accommodations for six hundred and fifty pupils. The entire corridor space of the first floor can be utilized as a balcony for the assembly hall. The second story is planned similar to the first, differing only in its provision for rooms to accommodate the principal, a library, a resting place for the teachers, and some extra toilets. The interior walls are of masonry, while the first floor and the corridors of the second floor are of fireproof construction.

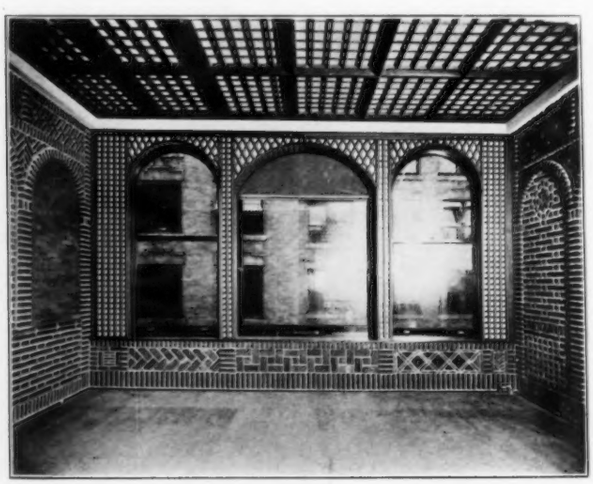
The total cost of the building was $103,000, and the cost per cubic foot 13½ cents.



THE accompanying illustrations show the treatment of wall surfaces in brick after designs by Addison B. Le Boutillier. They afford an excellent opportunity of showing the possibilities that may be obtained by using the various sizes and colors of brick. The panels are laid up in the different bonds, viz: English, Dutch, Flemish, and running bond, and suggest ornamental patterns made from the same brick. The length of the bricks range from eight to eighteen inches. In the panel which shows the Flemish bond, the very long stretcher is made by laying two 8 inch bricks together with a blind joint. The work throughout furnishes examples for belt courses, the different ways of treating headers, the manner of framing openings, and frieze effects. Beneath the window openings are patterns for the laying of walks with brick, as well as a scheme for the use of tiles 6 inches square. No attention in laying the brick was given to the color scheme, and yet one finds all the warm hues, such as the yellows, reds, and browns mixed in with shades of blues, grays, and greens. The mortar has been mixed to harmonize with the various tones of the brick and is tinted in red, white, gray, or brown. The rake and flush joints vary in width, the latter having the thickness of an inch in one of the panels. In the very wide joints small pebbles are used to effect a rough texture and at the same time increase the strength of the mortar. By a thorough study of the detail one can readily see that the work has been executed in a free manner, and little attention has been paid to the uniformity of the jointing or that the brick on one side of an axis should correspond exactly with those on the other, and yet the whole effect, with the natural balance of the light and dark colors, gives harmony and symmetry to the ensemble. This whole work is a display of "Tapestry" brick in the Boston offices of Fiske & Co., Inc.



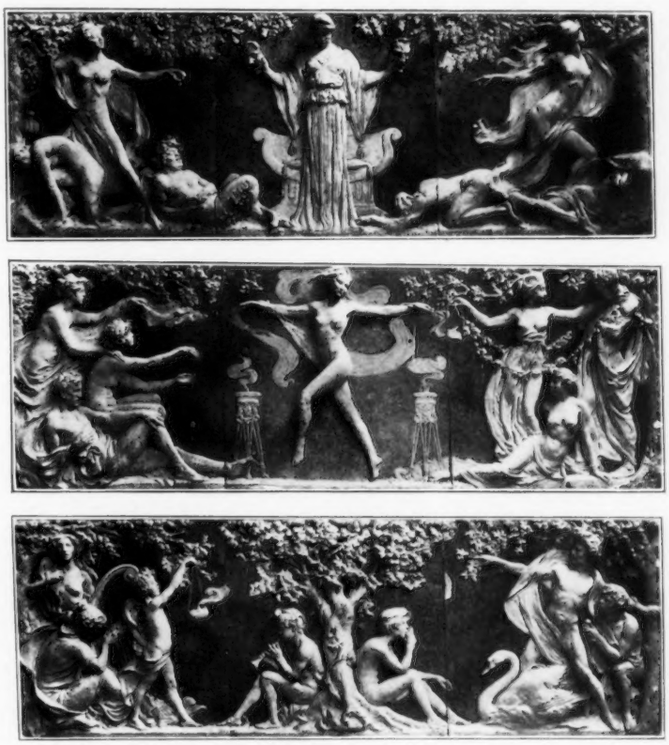




Editorial Comment and Miscellany.

PUBLIC SCHOOLS.

NOTHING could be of more vital interest to the American people than the growing desire for better housing of our school children that is taking root in the majority of our larger cities. In most cities competent men are selected to meet the ever increasing needs of the pupils. These public school commissions are spending every effort possible to find suitable quarters for the boys and girls that register, as well as securing healthier and better adapted buildings for them. The Board of Education in New York City is confronted with the problem of accommodating 70,000 children for whom no provision has been made. This is a condition that arises in the metropolis every year, but never before to such an extent, and the fault seems to belong elsewhere than upon the educational committee, who petitioned the Board of Estimate for an appropriation of $7,000,000 with which to build public schools, but to date they have received no definite reply to their petition.



DETAIL OF FRIEZE BETWEEN COLUMNS OF MAIN FAÇADE, BOSTON OPERA HOUSE.

The figures are in cream white on a light blue background. The work was executed in terra cotta by the Atlantic Terra Cotta Company.
Wheelwright & Haven, Architects.

England is now entering upon a new era in regard to her public schools. She is breaking away from her stereotyped building which holds little regard for modern methods and is now planning for the physical needs of the children as well as furnishing them with an abundance of light and fresh air. Of the features worthy of special commendation are the facilities for bathing. Believing that cleanliness should be a national virtue they have established shower, spray, and slipper baths. Furthermore they are teaching the pupils the essentials in domestic living and are providing dining halls in connection with well equipped kitchens. The best typical examples of English school planning which show proper regard for every modern improvement are found at Staffordshire, Letchworth, and Bradford.

Unusual interest is exhibited towards our public schools by the various art societies. The Chicago Water Color Club in conjunction with the Chicago Society of Artists have organized a rotary exhibition, loaning to the schools a collection of a hundred or more paintings which they allow to remain for several weeks at one place before removing them to another. Well known artists appear before the pupils and give interesting talks upon these works of art, thereby instilling into their young lives a knowledge of colors and their proper use. Other organizations like the Public School Art Society are decorating many of the schools in the poorer districts and have at the same time executed examples of model schools whereby all sections that are able to do so can beautify their own rooms. Surely such principles as these when adopted by the boards of education located in the various cities cannot fail to stimulate a keener appreciation for the good and beautiful among the children in our public schools — a vast majority of whom never receive a higher education.

COOPERATIVE APARTMENT HOUSE.

CONSERVATIVE calculation places the amount of capital at present invested in cooperative apartment house properties on Manhattan Island at between $25,000,000 and $30,000,000, says the New York *Evening Post*. While still a comparatively new idea in this country, the joint ownership of such city homes has been in vogue in Europe for centuries. Curiously enough, the supposedly uncommercial artist class have been the pioneers. The first apartment of this type was the "Rembrandt Studios" built on West 57th street by Jared Flagg and a number of artists in 1880. Within three years ten others were built. After the conspicuous failure of the "Navarro Flats" (owing to the error of building on leased ground), construction lagged until 1898, when Harry Ranger, heading a syndicate of artists, revived the idea. Steadily since then they have been becoming a stronger and stronger factor in the New York real estate field.

The essential features of the cooperative apartment house are its ownership by a stock corporation, the shareholders of which are entitled to acquire apartments on

long-term leases, and that it permits the gathering together of select tenants, which besides creating a community of interests, adds to the value of the property and the prestige of the neighborhood. They have in fact increased the supply of middle-grade private dwellings which have been made impracticable by the growth in the value of land. The method nowadays is this: A number of friends decide upon a location, form their company, purchase the site outright, select their architect, and build themselves, thereby eliminating the middleman's profit. The company holds title to the ground. Upon payment of their subscriptions stockholders are given apartments for ninety-five years usually, sometimes nine hundred and ninety-nine years, in some cases in perpetuity. In all of these apartment houses there are a certain number of apartments to be rented to non-stockholders, and revenue for taxes, assessments, running expenses, and other fixed charges is thus provided. A stockholder knows at the beginning very nearly what his home is going to cost. The cooperative apartment recently completed opposite the Museum of Natural History exemplifies, perhaps, the progress that has been made in this type of structure.

DETAIL BY PEABODY & STEARNS, ARCHITECTS.
Made by Conkling-Armstrong Terra Cotta Company.

A SEVERE blow to Chicago's plans for a "city beautiful" has been dealt by the superior court at Springfield, Ill., in holding that the $8,000,000 structure to house the Field Columbian Museum may not be erected in Grant Park, the lake-front playground. Upon this site the museum had been made the center of a system of parks, driveways, and other imposing buildings, which were to transform the city. Under the terms of the will the trustees of the museum still have three years in which to obtain a site; but it is doubtful if one near the heart of the city can be secured.

AFTER nearly three years of labor the Commercial Club of Chicago, aided by the local architects, has published its comprehensive plans for the beautification of the city. The plans are contained in a volume of over one hundred and fifty pages, profusely illustrated by Jules Guerin, Fernand Janin, and others. The six chief objects aimed at are the following: The improvement of the lake front. The creation of a system of highways outside the city. The improvement of railway terminals and the development of a complete traction system for both freight and passengers. The acquisition of an outer park system and of parkway circuits. The systematic arrangement of streets and avenues within the city in order to facilitate the movement to and from the business district. The development of centers of intellectual life and civic administration so related as to give coherence and unity to the city.

DETAIL BY JOHN W. VESTOR, ARCHITECT.
Made by Brick Terra Cotta & Tile Company.

DETAIL BY F. C. BONSACK, ARCHITECT.
Made by Winkle Terra Cotta Company.

THE annual report of the supervising architect of the Treasury, made public October 14th, states that during the last fiscal year twenty-one new government buildings and sixteen extensions of old buildings have been completed and eighty-five buildings commenced, while twenty-nine are still under contract. There are thirty-one extensions of Federal buildings in course of erection, fifty-six extensions yet to be placed under contract, and one hundred and forty-one sites for which no public buildings have as yet been provided. On July 1st last there was a balance of $4,476,308 available for sites and additional land, and $20,821,476 for construction, extension and repair work.

ARCHITECTS in the larger cities of the United States have been invited by officials of the Argentine Republic to submit, in competition, designs for a hospital group at Buenos Ayres. The buildings are to cost $10,000,000 and are to follow the system of twenty-four detached institutes of sixty beds in each. Houses for members of the faculty and residents, the electric lighting, water supply, heating, laundry, and other details, are to be presented in the plans. The program has been distributed by the consul general of the Argentine Republic at Washington. The competition is to close at noon, December 10th. The successful architect's compensation is to be five per cent, and he is to superintend the construction. The plans deemed second best are to obtain a prize of $10,000, and those considered third best will win $5,000.

DURING examination of a Chicago and Northwestern railroad bridge at Clinton, Iowa, a white worm about one half an inch long has been discovered attaching itself to the timbers far below the water line in such a manner as to soon render the bridge unsafe. Specimens of the worm have been sent to the University of Chicago for examination, and if found as destructive as is supposed another reason will have been discovered for the avoidance of wood construction.

PLANS for the William Rainey Harper Library, drawn by Shepley, Rutan & Coolidge, have been accepted by the board of trustees of the University of Chicago and

ground will be broken this summer for the erection of this, the University's largest and most costly structure. Four structures, adjoining the library and forming integral parts of the design made public in Chicago July 9th, will be erected as soon as funds are obtained, the whole representing an outlay of about $1,000,000.

THE Wall street district is full. So it would appear with the erection of the Bankers Trust Company's sixteen or twenty story building upon what is about the only site left which is unimproved by tall buildings. This is the land on which Jonathan Edwards' famous church once stood. It has been leased for twenty-one years, or with options for renewals for eighty-four years, at an aggregate rental of $7,000,000. Within the past year investments aggregating some $15,000,000 are represented in the construction of new buildings upon or very near Wall street. Future banking structures must be erected north of the famous thoroughfare.

DETAIL BY SOMMERFELD & STECKLER, ARCHITECTS.
Made by New Jersey Terra Cotta Company.

PRESIDENT DELANO, of the Wabash Railroad, has submitted to the City of Chicago the plans for a $100,000,000 transportation center to be built in that city. It includes new terminal facilities of the Western Indiana Railroad and contemplates the abandonment of present freight and passenger terminals and the centralization of many lines in a structure half a mile south of the present limits of the business district.

PROF. CHARLES RICKET, of Paris, claims to have discovered a means of purifying air in a room by use of an apparatus consisting of an air filter which mechanically sterilizes the air. Fine drops of glycerine are scattered along the walls of a cylinder, containing a suction fan, through which the air is whirled.

DETAIL BY G. AJELLO, ARCHITECT.
Made by New York Architectural Terra Cotta Company.

THE trustees of Princeton have selected the site of the Graduate College for the erection of which William Proctor has donated $500,000. It is to be a short distance southwest of the present campus. The prudential committee of the Yale corporation has voted in favor of erecting the new Physical Laboratory, for which $425,000 was recently given by William D. and Henry T. Sloane, on the Hillhouse property (Sachem's Wood) and at a point about midway on the Prospect street front. The

DETAIL BY SOUTH AMBOY TERRA COTTA COMPANY.

development of the new site of the University of Pittsburgh is progressing rapidly. Upon the forty-three acres in the Oakland district of the city, and formerly a part of the Schenley Farms, the School of Mines and the School of Engineering have been reared and the School of Medicine is to be commenced at once. A memorial fountain is to be erected with the sum of $30,000 bequeathed by Christopher Magee. The University of California has completed the purchase of two hundred and fifty additional acres of ground adjoining the campus and comprising the entire inner portion of Strawberry Cañon. The trustees of the Andover Theological Seminary, which removed last year to Cambridge and became affiliated with Harvard University, have purchased about two hundred thousand square feet of ground in Cambridge. Upon this a group of buildings will be erected. The principal building, to be called "Andover Hall," will front on Francis avenue. By the $500,000 gift of Lord Strathcona, McGill University comes into possession of a quarter of a million dollars, the difference being donated by Andrew Carnegie. Rutgers College will break ground within a few weeks for a new chemistry building.

IN GENERAL.

Hugo H. Zimmermann has opened an office for the practice of architecture at 184 La Salle street, Chicago, Ill.

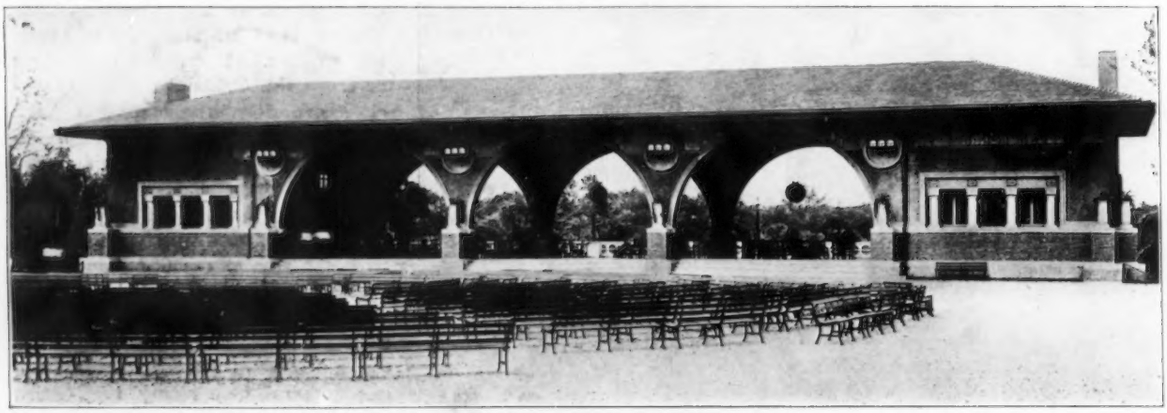
Lansburgh & Joseph, architects, of San Francisco, have dissolved their copartnership. G. Albert Lansburgh will continue practice with offices in the Gunst Building.

At the October meeting of the Cleveland Chapter A.I.A., W. Dominick Benes was elected president, Frederick W. Striebinger, vice president, and Emile Thebaud, secretary and treasurer.

Warren & Welton, architects, have removed to new and enlarged quarters, 1607-11 Empire Building, Birmingham, Ala.

The Architectural Club of Baltimore has removed from 6 West Eager street to its new rooms at 847 North Eutaw street.

The Avery Library Commission was created by the Letter of Gift of the founders, Mr. and Mrs. S. P. Avery, who established and endowed the library in memory of their son.



REFECTORY BUILDING, HUMBOLDT PARK, CHICAGO.
Roof laid with Ludowici-Celadon Tile.
Schmidt, Garden & Martin, Architects.

Henry O. Avery. The statement in our October issue that the library was established and endowed by Henry O. Avery is incorrect.

James C. Green announces that he has withdrawn from the firm of Kirby, Pettit & Green, and will continue the practice of architecture with offices at 103 Park avenue, New York City.

Announcement is made that the firm of Wills & Ingle has been dissolved. Hereafter Mr. Wills will continue business under the name of J. L. Wills, architect, Rookery Building, 127 Fourth street, Evansville, Ind.

Desjardins & Sheblessy, architects, Cincinnati, have dissolved their copartnership. Mr. Desjardins will retain the old offices in the Fourth National Bank Building, while Mr. Sheblessy has taken offices in the Provident Bank Building. Manufacturers' catalogues desired.

The Empire Building, for which Carpenter & Blair and Warren & Welton, associated, were architects, is located at Birmingham, Ala., and not at Atlanta, Ga., as stated in our October issue. Bruce & Morgan were the architects for the Empire Building at Atlanta.

The Year Book of the San Francisco Architectural Club issued in connection with the Fifth Exhibition and under the direction of the Architectural League of the Pacific Coast, is of more than ordinary merit and interest. The illustrations of work which is being done by the leading men of the coast is especially attractive and well worth studying. If we may venture a suggestion, it is that the illustrations would have had greater interest had more of them been from photographs of the buildings themselves rather than drawings.

DETAIL BY THOMAS HANNA, ARCHITECT. Made by Northwestern Terra Cotta Company.

After a struggle, lasting about thirteen years, Kansas City is to have an adequate union railroad station. The voters have overwhelmingly endorsed the new depot and terminal ordinance, and the railroad officials have acquiesced, promising that actual construction will soon be begun. The station is to cost about $3,000,000, and other improvements involved will cost about $12,000,000 additional.

Norfolk, Va., is about to pass upon a project to bring several railway systems through a tunnel, to be built under the Elizabeth River from Pinner's Point, into the business center of Norfolk and there terminate in a union station to be newly erected at a cost of about $1,000,000.

The architectural terra cotta used in the Cooke School at Washington, illustrated in the Plate Form of this issue, was furnished by the Atlantic Terra Cotta Company.

The terra cotta used for the Tilton School, illustrated in this issue, was supplied by the American Terra Cotta & Ceramic Co.

The Northwestern Terra Cotta Company furnished the terra cotta for the Bernhard Moos School, which is illustrated in this issue.

The enameled brick used in the Tilton School, Bernhard Moos School, and the Albert G. Lane Technical High School, the three new school buildings at Chicago, illustrated in this issue, was supplied by the Tiffany Enameled Brick Company.

We are indebted to the Boston *Post* for the photograph showing the interior of the Boston Opera House, illustrated in this issue.

The "Belnord," which is the new twelve story apartment house occupying the entire block bounded by Broadway, Amsterdam avenue, 86th and 87th streets in New York, is finished and opened to inspection. The facts about the building appearing in the advertisements soliciting tenants at rentals of $2,100 and upwards make interesting reading. The building is erected around an

open court 231 by 94 feet and contains apartments of all sizes from seven rooms up, with two, three, and four bathrooms and two or three servants' rooms and baths. Each apartment has a foyer hall opening directly into the parlor or dining room. Each apartment has an individual fireproof storage room in the basement. The kitchens, butlers' pantries, and laundries face on the streets, and the bedrooms open on the interior court, insuring quiet to the sleeping or living rooms. The advantage of this is seen when it is realized that the width of the court is greater than that of the average city street. All kitchens are equipped with gas ranges and have a garbage receptacle built in the wall and ventilated. The refrigerators are artificially cooled. Wall safes are a feature of each apartment. A vacuum cleaning plant with an outlet in each apartment and a complete telephone system, mechanical and electrical plant, spell what is probably the last word in modern apartment house equipment.

A FACTORY BUILDING.
The walls of which are constructed of 12 inch by 12 inch by 12 inch terra cotta blocks furnished by National Fireproofing Company. Building is 44 feet by 80 feet, with two wings each 18 feet by 36 feet. Floors, frame. Cost, $13,000, or 10 cents per cubic foot. Tile contract, $1,247.

HOUSE AT ST. PAUL, MINN.
Built of dark gray brick made by Twin City Brick Company, St. Paul. Clarence H. Johnston, Architect.

The architectural terra cotta used in the Boston Opera House, illustrated in the Plate Form of this issue, was supplied by the Atlantic Terra Cotta Company. All the columns shown and the trim were of a soft toned, cream white terra cotta.

"The Shubert Theatre" is the name of a new playhouse to be built in New York by the 39th street Theatre Company, of which Lee Shubert is the head. It is to be erected opposite the old Casino Theatre, on the site of the old Mystic Flats. The building will be seven stories high, and part of it will be fitted up as studios.

It is rumored that D. O. Mills will build another of the Mills Hotels in New York City.

COMPETITION FOR A PUBLIC BATH AND GYMNASIUM BUILDING.

FIRST PRIZE, $500. **SECOND PRIZE, $200.** **THIRD PRIZE, $100.**

COMPETITION CLOSES JANUARY 17, 1910.

PROGRAM.

THE problem is a Public Bath and Gymnasium Building. The location may be assumed in any American city of about 50,000 inhabitants, or some section in a larger city. Competitors may choose between two sites, one at the corner of two intersecting streets, or one in the middle of a block. Both lots are ample in size to accommodate the building and are practically level.

In plan the building may be rectangular (block); or of the pavilion type, having a central motive and two wings, with the longitudinal axis parallel to the street.

The plan should provide for the following: —

IF OF THE BLOCK TYPE: —

In the basement: a swimming pool, six showers, a suitable number of lockers, dressing rooms and benches, toilet rooms, supply rooms, a small laundry for washing and drying, heating plant, and coal storage.

On the first floor: general waiting room, administration offices, at least fifty showers (forty with individual dressing rooms, and ten arranged in groups), lockers, dressing benches, toilet rooms, etc.

On the second floor, which may extend approximately two stories: a gymnasium, six showers, four sponge baths, a rubbing table, lockers, dressing rooms, benches, instructors' and medical attendants' rooms.

IF OF THE PAVILION TYPE: —

In the central part of the building: first floor to provide for a reception room and administrative offices. Second floor to provide a hall for lectures and other entertainments.

In one wing: a gymnasium with the same accommodations as recommended for the block type.

In the other wing: a swimming pool, the shower baths, and other features suggested for the block type.

GENERAL: —

In connection with the gymnasium a running track should be provided which will have not more than twenty four laps to the mile. Other gymnasium apparatus need not be indicated.

Competitors are free to add any additional features to the plan and equipment which may seem desirable.

The exterior of the building is to be designed entirely in architectural terra cotta, employing color treatment in at least portions of the walls. It is suggested that large blank surfaces of gymnasium walls afford an excellent opportunity for design in terra cotta.

The following points will be considered in judging the designs: —

A. Rational and artistic treatment of the exterior. B. Frank and logical expression of the prescribed material. C. Excellence of plan.

It must be borne in mind that one of the chief objects of this competition is to encourage the study of the use of architectural terra cotta. There is no limitation of cost, but the designs must be suitable for the character of the building and for the material in which it is to be executed.

In awarding the prizes the intelligence shown in the constructive use of architectural terra cotta and the development or modification of style, by reason of the material, will be taken largely into consideration.

DRAWINGS REQUIRED.

On one sheet, at the top, the front elevation drawn at a scale of 8 feet to the inch. On the same sheet, below the front elevation, the floor plans drawn at a scale of 16 feet to the inch.

On a second sheet, at the top, the elevation of secondary importance drawn at a scale of 16 feet to the inch; immediately below half inch scale details of the most interesting features of the design. The details should indicate in a general manner the jointing of the terra cotta and the sizes of the blocks. The color scheme is to be indicated either by a key or a series of notes printed on the same sheet with the secondary elevation and details, at a size which will permit of two thirds reduction.

The size of each sheet (there are to be but two) shall be exactly 36 inches by 24 inches. Strong border lines are to be drawn on both sheets, one inch from edges, giving a space inside the border lines 34 inches by 22 inches. The sheets are not to be mounted.

All drawings are to be in black ink, without wash or color, except that the walls on the plans and in the sections may be blacked-in or cross-hatched.

Graphic scales to be on all drawings.

Every set of drawings is to be signed by a *nom de plume*, or device, and accompanying same is to be a sealed envelope with the *nom de plume* on the exterior and containing the true name and address of the contestant.

The drawings are to be delivered flat at the office of THE BRICKBUILDER, 85 Water Street, Boston, Mass., charges prepaid, on or before January 17, 1910.

Drawings submitted in this competition must be at owner's risk from the time they are sent until returned, although reasonable care will be exercised in their handling and keeping.

The prize drawings are to become the property of THE BRICKBUILDER, and the right is reserved to publish or exhibit any or all of the others. Those who wish their drawings returned may have them by enclosing in the sealed envelopes containing their names, ten cents in stamps, if on cardboard twenty-five cents in stamps.

The designs will be judged by three or five well-known members of the architectural profession.

For the design placed first in this competition there will be given a prize of $500. For the design placed second a prize of $200.
For the design placed third a prize of $100.

There have been published in THE BRICKBUILDER from time to time articles treating of the Public Bath and the Gymnasium, also illustrations of both types of buildings. This data, which may be of assistance to those who intend to enter this competition, will be found in the following issues: —

1909. February, March, April, May, June. 1908. February, March, April, May, June, August, November.

We are enabled to offer prizes of the above-mentioned amounts largely through the liberality of the terra cotta manufacturers who are represented in the advertising columns of THE BRICKBUILDER.

This competition is open to everyone.